CAMBRIDGE SYSTEMATICS

Bay Area/California High-Speed Rail Ridership and Revenue Forecasting Study

Socioeconomic Data, Transportation Supply, and Base Year Travel Patterns Data

draft

report

prepared for

Metropolitan Transportation Commission

prepared by

Cambridge Systematics, Inc.

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1.0 Introduction

The development and application of the high-speed rail forecasting model requires the assembly and collection of several types of data and model inputs. Broadly speaking, these requirements include:

- Base year and forecast year demographic and socioeconomic projections;
- Base year and forecast year transportation supply information; and
- Base year data on interregional travel patterns.

The forecasting model relates the base year travel pattern data to transportation supply and socioeconomic information, and then applies these relationships to the forecast year supply and socioeconomic projections to estimate potential high-speed rail usage in 2020, 2030, 2040, and 2050.

Fortunately, a number of data sources in each of these categories is already available. This report (for Task 4g) describes our current assessment of the potential data sources and our assembly of these data. The purpose of this report is to provide an overview of the data required to apply and validate the California statewide high speed rail ridership forecasting model. These data are described by year and mode.

2.0 Socioeconomic Data

The core drivers of demand for interregional travel in California are the socio-economic characteristics of Californians and the State's economic and employment picture. Among the relevant sources of current year data and projections are:

- Decennial Census data products, specifically the Census Transportation Planning Package (CTPP) and the Summary Tape File (STF) 1;
- Local agency socioeconomic estimates and projections, such as those developed and updated by the Association of Bay Area Governments (ABAG), the Southern California Association of Governments (SCAG), the San Diego Association of Governments (SANDAG), the Sacramento Association of Governments (SACOG); and
- State Department of Finance (DOF) projections.

To the extent that commercial sources and state employment data are used to develop the local agency socioeconomic estimates and projections, they are included herein, but these were not evaluated and incorporated separately for this study because there is a desire to remain consistent with current local agency forecasts. The Census, local and state agency data sources are described below.

Long range forecasts (beyond 2030) are derived from separate data sources since most local agencies do not produce forecasts for these years. These forecasts are necessary to provide consistency with the MTC Regional Rail Study so that high speed rail forecasts for 2040 and 2050 can be used to evaluate rail options in the Bay Area. These forecasts are described in this section as well.

Census Data

The Census Transportation Planning Package 2000 (CTPP 2000) is a set of special tabulations from the decennial census designed for transportation planners. CTPP contains tabulations by place of residence (Part I), place of work (Part II) and for flows between home and work (Part III). The Part III – Journey-To-Work (JTW) tables provide detailed information about commuting from home to work[1]. Part III data for the State of California have been downloaded and summarized in the following 10 districts, as shown in Table 2.1.

[1] These data are available at the CTPP web site http://www.fhwa.dot.gov/ctpp/.

Table 2.1 CTPP District and County Correspondence for California

District No.	District Name	County Name
1	SF Bay Area	Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma
2	Sacramento Area	El Dorado, Placer, Sacramento, Sutter, Yolo, Yuba
3	Los Angeles Area	Imperial, Los Angeles, Orange, Riverside, San Bernardino, Ventura
4	AMBAG	Monterey, San Benito, Santa Cruz
5	N. San Joaquin Area	Merced, San Joaquin, Stanislaus
6	S. San Joaquin Area	Fresno, Kern, Kings, Madera, Tulare
7	Northern California	Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Nevada, Plumas, Shasta, Sierra, Siskiyou, Tehama, Trinity
8	San Diego	San Diego
9	Central Coast	San Luis Obispo, Santa Barbara
10	Sierras	Alpine, Amador, Calaveras, Inyo, Mariposa, Mono, Tuolumne
11	Outside CA	All other states and countries

The modes of travel to work were taken from the Census 2000 Long Form questionnaire Number 23. There are 17 modes in the questionnaire: 1) drive alone, 2) 2-person car pool, 3) 3-person car pool, 4) 4-person car pool, 5) 5- or 6-person car pool, 6) 7 or more person car pool, 7) bus or trolley bus, 8) streetcar or trolley car, 9) subway or elevated, 10) railroad, 11) ferryboat, 12) bicycle, 13) walk, 14) taxicab, 15) motorcycle, 16) other means, 17) worked at home. The public transportation category includes workers who used a bus or trolley bus, streetcar or trolley car, subway or elevated, railroad, ferryboat, or taxicab even if each mode is not shown separately in the tabulation. The category, "other means," includes workers who used a mode of travel, which is not identified separately within the data distribution.

We have aggregated these categories into five modes: 1) drive alone, 2) car pool, 3) bus, 4) rail, and 5) other means. The other means mode includes ferryboat, bicycle, walk, taxicab, motorcycle, and other means. These trips by modes are shown in Table 2.2 through 2.7. Table 2.6 shows the total journey to work trips.

Table 2.2 Census 2000 Journey to Work Trips – Drive Alone

	Work Region											
Residence Region	**AMBAG**	**Bay Area**	**Central Coast**	**LA Area**	**North San Joaquin**	**Northern California**	**Outside CA**	**South San Joaquin**	**Sacramento**	**San Diego**	**Sierras**	**Grand Total**
AMBAG	182,395	33,172	420	517	195	45	240	299	135	74	4	**217,496**
Bay Area	5,944	2,216,738	230	4,884	3,880	1,323	3,258	498	10,335	830	55	**2,247,975**
Central Coast	625	619	197,360	4,135	–	–	188	509	95	140	–	**203,671**
Los Angeles Area	610	5,479	8,535	4,864,685	450	610	14,796	6,535	1,003	25,955	225	**4,928,883**
N. San Joaquin Area	670	35,684	45	737	295,930	50	170	2,339	6,415	25	1,085	**343,150**
Northern California	100	7,002	25	2,872	129	267,215	2,478	109	11,412	457	129	**291,928**
Outside CA	–	550	–	1,625	4	25		22	145	425	–	**2,796**
S. San Joaquin Area	444	2,638	515	8,407	1,979	745	618	528,115	888	440	634	**545,423**
Sacramento Area	315	17,085	25	1,952	7,245	4,859	5,120	490	604,255	290	965	**642,601**
San Diego	325	1,115	110	22,105	55	25	5,326	235	130	929,680	105	**959,211**
Sierras	258	2,714	4	3,187	4,390	20	305	575	2,720	479	41,970	**56,622**
Grand Total	**191,686**	**2,322,796**	**207,269**	**4,915,106**	**314,257**	**274,917**	**32,499**	**539,726**	**637,533**	**958,795**	**45,172**	**10,439,756**

Source: http://www.fhwa.dot.gov/ctpp/.

Table 2.3 Census 2000 Journey to Work Trips – Car Pool

	Work Region											
Residence Region	**AMBAG**	**Bay Area**	**Central Coast**	**LA Area**	**North San Joaquin**	**Northern California**	**Outside CA**	**South San Joaquin**	**Sacramento**	**San Diego**	**Sierras**	**Grand Total**
AMBAG	46,049	7,685	152	89	48	–	67	53	–	54	15	**54,212**
Bay Area	1,311	419,406	63	859	843	302	980	135	2,045	194	10	**426,148**
Central Coast	239	102	41,370	729	–	–	61	154	–	10	–	**42,665**
Los Angeles Area	193	1,698	3,150	1,015,825	121	87	4,759	2,525	305	5,791	57	**1,034,511**
N. San Joaquin Area	222	14,552	–	231	57,278	24	50	965	1,556	–	351	**75,229**
Northern California	24	1,689	10	603	83	47,265	595	50	2,378	87	55	**52,839**
Outside CA	–	174	–	411	4	–		29	35	121	–	**774**
S. San Joaquin Area	394	761	505	2,542	696	275	195	124,875	391	114	248	**130,996**
Sacramento Area	40	3,474	–	256	1,258	957	1,255	81	108,837	32	309	**116,499**
San Diego	65	332	49	5,184	4	10	1,632	61	24	161,705	4	**169,070**
Sierras	122	588	14	864	1,062	–	36	103	637	92	7,749	**11,267**
Grand Total	**48,659**	**450,461**	**45,313**	**1,027,593**	**61,397**	**48,920**	**9,630**	**129,031**	**116,208**	**168,200**	**8,798**	**2,114,210**

Source: http://www.fhwa.dot.gov/ctpp/.

Table 2.4 Census 2000 Journey to Work Trips – Bus

	Work Region											
Residence Region	**AMBAG**	**Bay Area**	**Central Coast**	**LA Area**	**North San Joaquin**	**Northern California**	**Outside CA**	**South San Joaquin**	**Sacramento**	**San Diego**	**Sierras**	**Grand Total**
AMBAG	6,715	572	4	14	–	–	4	–	15	8	–	**7,332**
Bay Area	170	192,030	14	196	25	25	463	8	162	18	–	**193,111**
Central Coast	–	10	5,139	60	–	–	–	4	–	–	–	**5,213**
Los Angeles Area	37	316	124	286,027	10	107	1,168	129	84	164	15	**288,181**
N. San Joaquin Area	–	600	–	24	3,465	–	–	–	70	–	–	**4,159**
Northern California	–	70	–	27	–	2,646	29	–	75	4	15	**2,866**
Outside CA	–	59	–	144	–	–		–	–	24	–	**227**
S. San Joaquin Area	139	76	–	85	–	–	24	9,289	4	33	–	**9,650**
Sacramento Area	15	288	–	15	4	43	318	40	18,605	–	–	**19,328**
San Diego	19	59	10	248	–	–	346	34	–	39,240	–	**39,956**
Sierras	20	147	–	64	10	25	4	15	4	34	489	**812**
Grand Total	**7,115**	**194,227**	**5,291**	**286,904**	**3,514**	**2,846**	**2,356**	**9,519**	**19,019**	**39,525**	**519**	**570,835**

Source: http://www.fhwa.dot.gov/ctpp/.

Table 2.5 Census 2000 Journey to Work Trips – Rail

	Work Region											
Residence Region	**AMBAG**	**Bay Area**	**Central Coast**	**LA Area**	**North San Joaquin**	**Northern California**	**Outside CA**	**South San Joaquin**	**Sacramento**	**San Diego**	**Sierras**	**Grand Total**
AMBAG	75	263	–	–	–	–	4	–	–	–	–	**342**
Bay Area	25	118,159	–	50	–	4	387	4	160	15	–	**118,804**
Central Coast	–	–	65	35	–	–	19	–	–	–	–	**119**
Los Angeles Area	10	98	4	22,102	10	–	657	–	–	90	–	**22,971**
N. San Joaquin Area	–	844	–	–	47	–	–	–	10	–	–	**901**
Northern California	–	91	–	4	–	30	10	–	–	–	–	**135**
Outside CA	–	4	–	4	–	–		–	–	–	–	**8**
S. San Joaquin Area	–	24	–	38	–	–	–	221	–	–	–	**283**
Sacramento Area	–	265	–	45	–	4	14	–	2,000	–	–	**2,328**
San Diego	–	28	–	509	–	–	64	–	–	2,270	–	**2,871**
Sierras	–	49	–	40	–	–	–	–	–	–	19	**108**
Grand Total	**110**	**119,825**	**69**	**22,827**	**57**	**38**	**1,155**	**225**	**2,170**	**2,375**	**19**	**148,870**

Source: http://www.fhwa.dot.gov/ctpp/.

Table 2.6 Census 2000 Journey to Work Trips – Other Modes

	Work Region											
Residence Region	**AMBAG**	**Bay Area**	**Central Coast**	**LA Area**	**North San Joaquin**	**Northern California**	**Outside CA**	**South San Joaquin**	**Sacramento**	**San Diego**	**Sierras**	**Grand Total**
AMBAG	19,722	656	95	201	–	–	117	12	–	19	–	**20,822**
Bay Area	199	180,954	32	1,642	45	60	2,740	69	267	295	–	**186,303**
Central Coast	24	49	19,854	264	–	–	178	43	40	33	–	**20,485**
Los Angeles Area	87	1,809	277	276,980	34	14	6,323	187	370	567	307	**286,955**
N. San Joaquin Area	4	552	–	188	17,885	4	33	77	133	23	29	**18,928**
Northern California	–	889	–	812	14	22,355	157	4	190	159	4	**24,584**
Outside CA	–	326	–	1,174	–	–		19	–	229	–	**1,748**
S. San Joaquin Area	59	499	36	675	84	53	526	30,230	72	115	38	**32,387**
Sacramento Area	43	735	–	724	148	110	757	8	35,204	134	4	**37,867**
San Diego	14	665	30	1,609	18	8	3,657	79	83	63,545	–	**69,708**
Sierras	24	471	20	756	47	4	18	25	92	177	4,391	**6,025**
Grand Total	**20,176**	**187,605**	**20,344**	**285,025**	**18,275**	**22,608**	**14,506**	**30,753**	**36,451**	**65,296**	**4,773**	**705,812**

Source: http://www.fhwa.dot.gov/ctpp/.

Table 2.7 Census 2000 Journey to Work Trips – All Trips

	Work Region											
Residence Region	**AMBAG**	**Bay Area**	**Central Coast**	**LA Area**	**North San Joaquin**	**Northern California**	**Outside CA**	**South San Joaquin**	**Sacramento**	**San Diego**	**Sierras**	**Grand Total**
AMBAG	268,330	42,375	665	819	255	45	440	370	155	160	25	**313,639**
Bay Area	7,665	3,260,120	340	7,720	4,795	1,715	7,970	705	13,020	1,350	65	**3,305,465**
Central Coast	895	780	278,145	5,230	–	–	455	705	135	185	–	**286,530**
Los Angeles Area	950	9,420	12,100	6,708,400	645	820	27,935	9,370	1,780	32,565	605	**6,804,590**
N. San Joaquin Area	900	52,210	45	1,180	388,590	80	255	3,395	8,190	50	1,470	**456,365**
Northern California	124	9,769	35	4,297	230	361,238	3,255	165	14,080	723	199	**394,115**
Outside CA	–	1,129	–	3,368	10	25		74	180	825	–	**5,611**
S. San Joaquin Area	1,045	4,010	1,075	11,735	2,765	1,080	1,370	715,425	1,360	715	930	**741,510**
Sacramento Area	425	21,859	25	2,984	8,665	5,980	7,455	615	803,035	455	1,270	**852,768**
San Diego	420	2,190	205	29,670	74	50	11,035	405	235	1,253,630	110	**1,298,024**
Sierras	430	3,994	40	4,882	5,515	45	370	715	3,495	795	58,760	**79,041**
Grand Total	**281,184**	**3,407,856**	**292,675**	**6,780,285**	**411,544**	**371,078**	**60,540**	**731,944**	**845,665**	**1,291,453**	**63,434**	**14,537,658**

Source: http://www.fhwa.dot.gov/ctpp/.

It can be seen from the data that the most congested corridor is the "San Diego – Los Angeles corridor," where 62,235 people commutes everyday, followed by the "North San Joaquin – SF Bay area corridor" where 57,005 people commutes everyday. However, the most congested one way corridor is from "North San Joaquin to SF Bay area."

Out of 14.5 millions JTW trips, about 72 percent are drive alone trips; 15 percent are car pool trips; and about 5 percent are public transit trips. The total JTW trips are also shown in graphical form in Figure 2.1.

Local Agency Socioeconomic Data

The statewide high-speed rail model will be applied for a number of forecast years, including base year analyses for both 2000 and 2005. For the future, some combination of 2020, 2030, 2040 and 2050 analyses will be conducted.

The year 2000 model data is available from the Statewide Travel Model (STM) and the four urban models being used:

- Metropolitan Transportation Commission (MTC),
- Southern California Association of Governments (SCAG),
- San Diego Association of Governments (SANDAG), and
- Sacramento Area Council of Governments (SACOG),

Horizon years currently vary between 2025 (STM), 2027 (SACOG), and 2030 (MTC). Future year data from SCAG and SANDAG is currently not available. Table 2.8 presents the population by region for the base (2000) and forecast year (2030). Table 2.9 and 2.10 presents the employment by region and jobs per person by region for the same base and forecast years, respectively.

Figure 2.1 Census 2000 Journey to Work Trips – All Trips

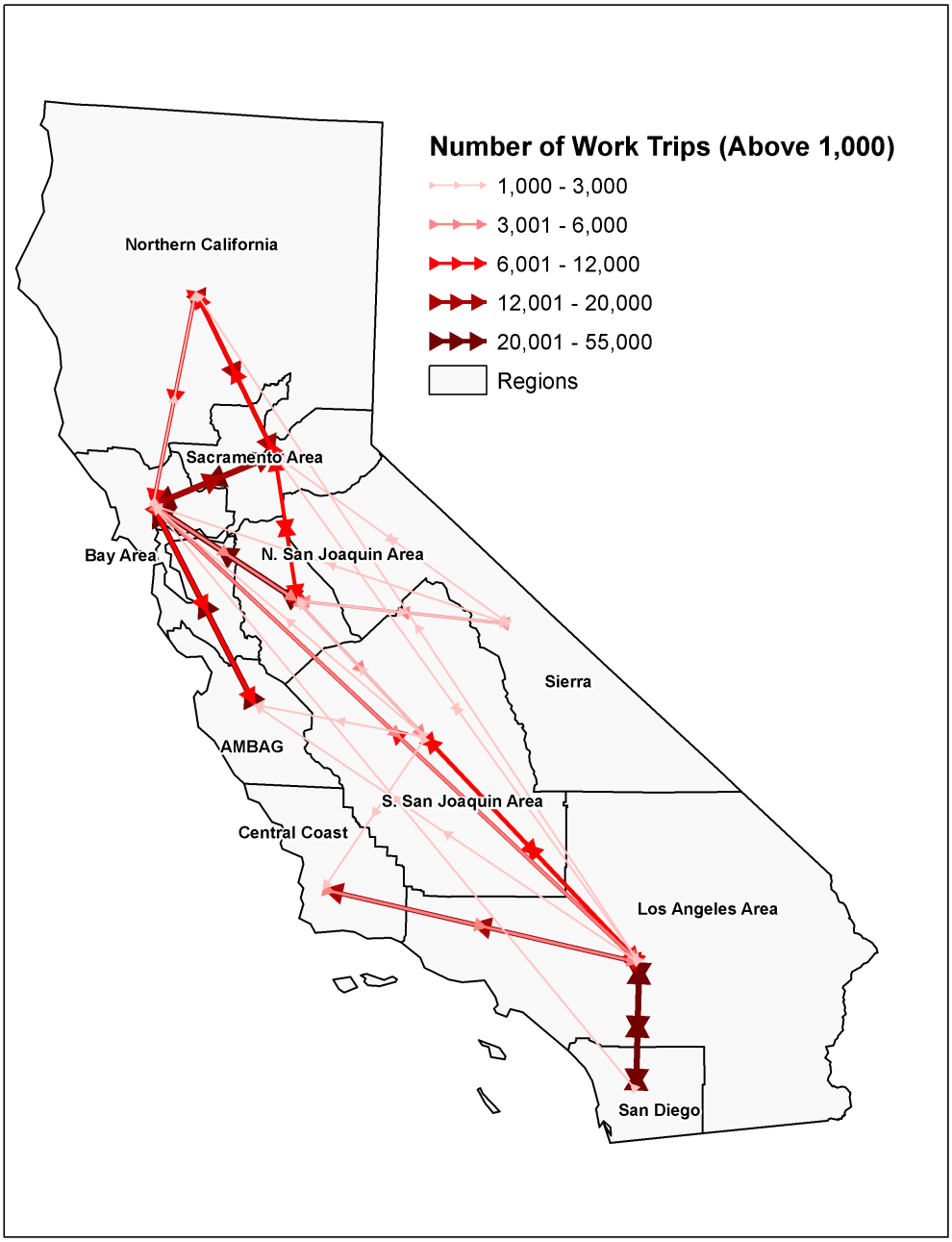


Table 2.8 Population by California Region
Base and Horizon Years

Region	2000 Population	Horizon Population	Avg. Annual Population Growth	Horizon Year	2030 Population
San Diego	2,803,511	3,586,238	0.8%	*2025*	3,674,176
Los Angeles Region	16,475,947	22,865,552	1.3%	*2025*	24,414,507
Sierras	172,467	262,181	1.7%	*2025*	285,089
South San Joaquin Valley	2,050,700	3,869,762	2.6%	*2025*	4,393,804
Central Coast	626,278	1,053,300	2.1%	*2025*	1,168,716
Monterey Bay Area	684,593	1,145,764	2.1%	*2025*	1,270,070
San Francisco Bay Area	6,783,762	8,747,102	0.9%	*2030*	8,747,102
North San Joaquin Valley	1,229,749	2,340,712	2.6%	*2025*	2,662,283
Sacramento Region	1,949,488	2,971,778	1.6%	*2027*	3,114,299
Northern California	977,696	1,567,071	1.9%	*2025*	1,722,129
Total	**33,887,529**	**48,362,763**	**1.2%**		**51,452,176**

Table 2.9 Employment by California Region
Base and Horizon Years

Region	2000 Employment	Horizon Employment	Avg. Annual Employment Growth	Horizon Year	2030 Employment
San Diego	1,230,860	1,826,398	1.3%	*2025*	2,053,176
Los Angeles Region	6,906,602	9,897,951	1.4%	*2025*	10,636,567
Sierras	55,358	90,122	2.0%	*2025*	99,348
South San Joaquin Valley	785,304	1,491,914	2.6%	*2025*	1,696,231
Central Coast	278,494	407,896	1.5%	*2025*	440,247
Monterey Bay Area	286,937	398,598	1.3%	*2025*	425,682
San Francisco Bay Area	3,753,533	5,120,598	1.0%	*2030*	5,120,598
North San Joaquin Valley	425,801	759,313	2.3%	*2025*	852,440
Sacramento Region	868,340	1,233,803	1.3%	*2027*	1,282,911
Northern California	335,737	482,380	1.5%	*2025*	518,642
Total	**14,727,282**	**21,713,107**	**1.3%**		**23,125,841**

Table 2.10 Jobs Per Person by California Region
Base and Horizon Years

Region	2000 Jobs Per Person	Horizon Year Jobs Per Person	2030 Jobs Per Person
San Diego	0.43	0.51	0.56
Los Angeles Region	0.42	0.43	0.44
Sierras	0.32	0.34	0.35
South San Joaquin Valley	0.38	0.39	0.39
Central Coast	0.44	0.39	0.38
Monterey Bay Area	0.42	0.35	0.34
San Francisco Bay Area	0.55	0.59	0.59
North San Joaquin Valley	0.35	0.32	0.32
Sacramento Region	0.45	0.42	0.41
Northern California	0.34	0.31	0.30
Total	**0.43**	**0.45**	**0.45**

Long-Range Forecasts

High-speed rail forecasts will be prepared for four horizon years – 2020, 2030, 2040, and 2050. Detailed zonal-level population and employment data are available for a number of horizon years between 2025 and 2030 (as shown in Tables 2.8 and 2.9 above). However, there are relatively few data sources that project population to the year 2050, and only one source of employment data by the Sacramento Council of Governments. This employment data will be obtained and reviewed for use in this project.

County-level population data has been identified from two primary sources:

1. The California Department of Finance (DOF) maintains population projections on 10-year intervals out to 2050[2]; and
2. Landis and Reilly published a paper examining population and employment changes 100 years into the future[3].

[2] State of California, Department of Finance, Demographic Research Unit web site: http://www.dof.ca.gov/HTML/DEMOGRAP/DRU_Publications/Projections/P1.htm

[3] Landis, J. D., and M. Reilly, 2003, *How We Will Grow: Baseline Projections of the Growth of California's Urban Footprint Through the Year 2100*, Institute of Urban and Regional Development, IURD Working Paper Series, Paper WP-2003-04, August 1, http://repositories.cdlib.org/iurd/wps/WP-2003-04/.

Other data sources include the Public Policy Institute of California, Center for the Continuing Study of the California Economy and the UCLA Anderson Forecasts. However, web searches of these sites did not yield definitive information on the existence of 2050 forecasts.

A comparison of both the DOF and Landis/Reilly forecasts result in base year differences with the Census Data. The Landis/Reilly report that their 2000 data is from the DOF. However, the DOF web site reports different base year totals, as seen in Table 2.11. These forecasts are at wide variance, with the DOF forecasting a statewide population of fewer than 55 million, while the Landis/Reilly forecasts a 2050 population of nearly 67 million. The DOF forecasts 1.0 percent growth compounded over 50 years, compared to the Landis/Reilly forecast 1.3 percent growth statewide. These differences underscore the importance of compounded growth over long-time periods.

Landis and Reilly have projections to the year 2050, but with no intermediate years. As such, it is not possible to check any of the MPO forecasts against this study. However, the DOF population data can be readily checked against the Bay Area forecasts prepared by the Association of Bay Area Governments, as presented in Table 2.12. The DOF data forecasts regional Bay Area population five percent higher than compared to the ABAG projections. This difference would otherwise be considered a less-than-significant difference, except many of the county-level differences are far greater. Three counties have differences of 24 percent or more, and only three of nine counties show differences of less than 10 percent. These differences cast doubt on the usefulness of the DOF data for long-term forecasting.

The DOF forecasts for the year 2030 are reasonably close to the extrapolated 2030 population forecasts. The extrapolated population forecast for 2030 is 51,452,176 in 2030; DOF forecasts 48,110,671. However, the DOF forecast growth rate is roughly halved after 2030.

Table 2.11 Year 2000 Population by County from Different Data Sources

County	Region	2000 Census (STF-1)	2000 DOF	2000 Landis/Reilly
San Diego	San Diego	2,813,833	2,832,563	2,943,001
Imperial	LA Area	142,361	143,660	154,549
Los Angeles	LA Area	9,519,338	9,559,635	9,838,861
Orange	LA Area	2,846,289	2,854,026	2,833,190
Riverside	LA Area	1,545,387	1,553,902	1,570,885
San Bernardino	LA Area	1,709,434	1,719,615	1,727,452
Ventura	LA Area	753,197	757,172	753,820
Alpine	Sierra	1,208	1,247	1,239
Amador	Sierra	35,100	35,434	34,853
Calaveras	Sierra	40,554	40,890	42,041
Inyo	Sierra	17,945	18,257	18,437
Mariposa	Sierra	17,130	17,185	16,762
Mono	Sierra	12,853	12,939	10,891
Tuolumne	Sierra	54,501	54,946	56,125
Fresno	South SJ Valley	799,407	803,401	811,179
Kern	South SJ Valley	661,645	664,694	677,372
Kings	South SJ Valley	129,461	129,823	126,672
Madera	South SJ Valley	123,109	124,372	126,394
Tulare	South SJ Valley	368,021	369,355	379,944
San Luis Obispo	Central Coast	246,681	248,327	254,818
Santa Barbara	Central Coast	399,347	400,778	412,071
Monterey	AMBAG	401,762	403,636	401,886
San Benito	AMBAG	53,234	53,770	51,853
Santa Cruz	AMBAG	255,602	256,874	260,248
Alameda	Bay Area	1,443,741	1,451,109	1,470,155
Contra Costa	Bay Area	948,816	954,504	931,946
Marin	Bay Area	247,289	248,473	248,397
Napa	Bay Area	124,279	124,945	127,084
San Francisco	Bay Area	776,733	781,174	792,049
Santa Clara	Bay Area	1,682,585	1,691,183	1,763,252
Solano	Bay Area	394,542	396,784	399,841

Table 2.11 Year 2000 Population by County from Different Data Sources (continued)

County	Region	2000 Census (STF-1)	2000 DOF	2000 Landis/Reilly
San Mateo	Bay Area	707,161	710,493	747,061
Sonoma	Bay Area	458,614	461,347	459,258
Merced	North SJ Valley	210,554	210,876	215,256
San Joaquin	North SJ Valley	563,598	567,798	579,172
Stanislaus	North SJ Valley	446,997	449,777	459,025
El Dorado	Sac. Region	156,299	158,570	163,197
Placer	Sac. Region	248,399	249,471	243,646
Sacramento	Sac. Region	1,223,499	1,230,465	1,212,527
Sutter	Sac. Region	78,930	79,464	82,040
Yuba	Sac. Region	60,219	60,553	63,983
Yolo	Sac. Region	168,660	169,882	164,010
Butte	Northern CA	203,171	204,672	207,158
Colusa	Northern CA	18,804	18,923	20,973
Del Norte	Northern CA	27,507	27,652	31,155
Glenn	Northern CA	26,453	26,718	29,298
Humboldt	Northern CA	126,518	127,173	128,419
Lake	Northern CA	58,309	58,863	60,072
Lassen	Northern CA	33,828	34,039	35,959
Mendocino	Northern CA	86,265	86,852	90,442
Modoc	Northern CA	9,449	9,475	10,481
Nevada	Northern CA	92,033	92,431	120,000
Plumas	Northern CA	20,824	20,829	20,852
Shasta	Northern CA	163,256	164,748	175,777
Sierra	Northern CA	3,555	3,636	3,457
Siskiyou	Northern CA	44,301	44,695	45,194
Tehama	Northern CA	56,039	56,042	56,666
Trinity	Northern CA	13,022	13,081	13,490
California		**33,871,648**	**34,043,198**	**34,675,835**

Table 2.12 Year 2030 San Francisco Bay Area Population Projections

Bay Area County	ABAG 2003	DOF	Difference	Percent Difference
Alameda	1,884,600	2,038,482	153,882	**8%**
Contra Costa	1,244,800	1,543,053	298,253	**24%**
Marin	284,000	248,684	-35,316	**-12%**
Napa	153,400	190,234	36,834	**24%**
San Francisco	924,601	796,208	-128,393	**-14%**
San Mateo	848,400	814,065	-34,335	**-4%**
Santa Clara	2,267,101	2,152,963	-114,138	**-5%**
Solano	581,800	677,628	95,828	**16%**
Sonoma	558,400	715,298	156,898	**28%**
Bay Area Total	**8,747,102**	**9,176,615**	**429,513**	**5%**

A full decade-by-decade comparison of population projections between DOF and ABAG in the San Francisco Bay Area is presented in Table 2.13. ABAG projections only go out to the year 2030; year 2040 and 2050 ABAG projections are extrapolated from average annual growth rates between 2000 and 2030. The 2000 to 2030 extrapolated growth rates are only slightly higher than the 2020 to 2030 ABAG growth rate (0.85 percent annual growth from 2000 to 2030, and 0.78 percent annual growth from 2020 to 2030).

In general, DOF assumes a greater increase in population than ABAG through 2040. However, this trend is reversed in 2050. The DOF forecast growth rates are roughly halved after 2030. DOF forecasts average annual Bay Area growth of around 1.0 percent to 2030, but the growth rate drops to 0.53 percent per year between 2030 and 2040. The annual DOF growth rate in the Bay Area drops further still to 0.43 percent annually between 2040 and 2050.

On a regional basis, the difference between DOF and ABAG is small for any given horizon year. However, county-level differences are much greater. The most striking differences are in San Francisco. DOF forecasts a decline in San Francisco of almost 75,000 persons between 2000 and 2050, while ABAG projects an increase over 200,000 persons to a population of more than a million in 2050. The difference between DOF and ABAG amounts to about one-third of San Francisco's current population.

Table 2.13 DOF and ABAG Population Projections for the San Francisco Bay Area

County	2000	2010	2020	2030	2040	2050
California Department of Finance Population Forecasts						
Alameda	1,451,109	1,651,164	1,864,145	2,038,482	2,187,098	2,315,045
Contra Costa	954,504	1,116,298	1,327,081	1,543,053	1,701,209	1,848,177
Marin	248,473	252,440	251,260	248,684	237,244	225,127
Napa	124,945	142,121	165,946	190,234	205,338	221,466
San Francisco	781,174	816,230	820,545	796,208	757,161	706,192
San Mateo	710,493	747,134	786,740	814,065	825,638	826,342
Santa Clara	1,691,183	1,844,146	2,006,992	2,152,963	2,252,668	2,325,538
Solano	396,784	455,647	555,264	677,628	751,782	830,830
Sonoma	461,347	515,968	602,783	715,298	751,906	796,792
Region	**6,820,012**	**7,541,148**	**8,380,756**	**9,176,615**	**9,670,044**	**10,095,509**
ABAG Projections 2005 – (Extrapolated to 2040 and 2050)						
Alameda	1,443,741	1,584,500	1,714,500	1,884,600	2,059,661	2,250,984
Contra Costa	948,816	1,055,600	1,150,900	1,244,800	1,362,716	1,491,802
Marin	247,289	258,500	275,000	284,000	297,410	311,454
Napa	124,279	139,700	148,100	153,400	164,551	176,513
San Francisco	776,733	810,700	859,199	924,601	979,900	1,038,507
San Mateo	707,163	741,000	806,500	848,400	901,490	957,903
Santa Clara	1,682,585	1,855,500	2,073,301	2,267,101	2,504,007	2,765,668
Solano	394,542	466,100	532,400	581,800	662,217	753,750
Sonoma	458,614	508,000	534,100	558,400	596,272	636,714
Region	**6,783,762**	**7,419,600**	**8,094,000**	**8,747,102**	**9,528,226**	**10,383,296**
Difference: Department of Finance Less ABAG Projections 2005						
Alameda	7,368	66,664	149,645	153,882	127,437	64,061
Contra Costa	5,688	60,698	176,181	298,253	338,493	356,375
Marin	1,184	(6,060)	(23,740)	(35,316)	(60,166)	(86,327)
Napa	666	2,421	17,846	36,834	40,787	44,953
San Francisco	4,441	5,530	(38,654)	(128,393)	(222,739)	(332,315)
San Mateo	3,330	6,134	(19,760)	(34,335)	(75,852)	(131,561)
Santa Clara	8,598	(11,354)	(66,309)	(114,138)	(251,339)	(440,130)
Solano	2,242	(10,453)	22,864	95,828	89,565	77,080
Sonoma	2,733	7,968	68,683	156,898	155,634	160,078
Region	**36,250**	**121,548**	**286,756**	**429,513**	**141,818**	**(287,787)**

In addition, only one Bay Area County shows 2050 DOF and ABAG population totals with a less than 10 percent difference between one another (Alameda). The average absolute difference is 20 percent in the year 2050. Thus, if DOF forecasts are to be used for determining county control population totals to the year 2050, some caution must be used to when evaluating for reasonableness.

Table 2.14 presents a summary of the growth rates by county from the DOF and Landis data sources. Again, we see that overall the growth rates are not that different, but individual counties show significant differences.

While the 2050 county-level population projections show significant differences, the issues on the employment end are more acute; that is, no county-level employment projections to the year 2050 exist for the entire State of California. The Southern California Association of Governments (SCAG) recently prepared a PowerPoint presentation on-line that describes its methodology for creating employment projections to the year 2030[4]. SCAG's methodology starts with regional population totals and derives employment projections based on the following sequence of calculations:

Total Population → Work Force → Workers → Jobs

The conversion of total population to the work force requires application of labor force participation rates (LFPR). The work force is converted to workers by assuming an unemployment rate. The final calculation, converting workers to jobs, is done by assuming a jobs-to-worker ratio.

While these calculations are fairly straightforward, a series of assumptions must be made to create long-term, regional-level employment projections, and from there, zonal allocation processes must be developed to expand regional forecasts to small levels of detail. Although it is beyond the scope of work for this project to create these detailed population and employment projections down to the travel analysis zone level, some data is presented here.

[4] Southern California Association of Governments, Community Development Division, 2007 RTP Employment Projection Update – Methodology and Preliminary Results for the Regional Total, http://www.scag.ca.gov/rtptac/pps/tac061605_GrowthForecastUpdate.ppt, accessed November 28, 2005.

Table 2.14 Year 2050 Population Projections by County

County	Region	2050 Population Projections		Average Annual Percent Growth (from 2000)	
		DOF	Landis	DOF	Landis
San Diego	San Diego	4,506,099	5,831,574	0.9%	1.4%
Imperial	LA Area	339,506	612,914	1.7%	2.8%
Los Angeles	LA Area	11,423,198	15,497,560	0.4%	0.9%
Orange	LA Area	3,702,641	4,535,936	0.5%	0.9%
Riverside	LA Area	4,305,161	5,335,081	2.1%	2.5%
San Bernardino	LA Area	3,289,254	4,983,011	1.3%	2.1%
Ventura	LA Area	1,071,905	1,456,134	0.7%	1.3%
Alpine	Sierra	1,263	2,261	0.0%	1.2%
Amador	Sierra	47,829	46,935	0.6%	0.6%
Calaveras	Sierra	92,856	91,124	1.7%	1.6%
Inyo	Sierra	17,699	27,538	-0.1%	0.8%
Mariposa	Sierra	25,456	32,101	0.8%	1.3%
Mono	Sierra	18,862	19,434	0.8%	1.2%
Tuolumne	Sierra	72,265	106,662	0.5%	1.3%
Fresno	South SJ Valley	1,658,281	1,753,356	1.8%	1.5%
Kern	South SJ Valley	1,549,594	1,919,849	1.5%	1.6%
Kings	South SJ Valley	282,364	309,815	1.7%	2.1%
Madera	South SJ Valley	302,859	411,713	1.6%	1.8%
Tulare	South SJ Valley	867,482	982,425	1.8%	2.4%
San Luis Obispo	Central Coast	343,548	617,709	1.7%	1.9%
Santa Barbara	Central Coast	481,840	905,294	0.7%	1.8%
Monterey	AMBAG	654,847	1,006,978	0.4%	1.6%
San Benito	AMBAG	105,032	133,208	1.0%	1.9%
Santa Cruz	AMBAG	293,350	572,017	1.3%	1.9%
Alameda	Bay Area	2,315,045	2,287,126	0.3%	1.6%
Contra Costa	Bay Area	1,848,177	1,394,436	0.9%	0.9%
Marin	Bay Area	225,127	325,152	1.3%	0.8%
Napa	Bay Area	221,466	214,934	-0.2%	0.5%
San Francisco	Bay Area	706,192	710,034	1.2%	1.1%
San Mateo	Bay Area	826,342	1,044,065	-0.2%	-0.2%
Santa Clara	Bay Area	2,325,538	2,884,875	0.3%	0.7%
Solano	Bay Area	830,830	789,742	0.6%	1.0%

Table 2.14 Year 2050 Population Projections by County (continued)

County	Region	2050 Population Projections		Average Annual Percent Growth (from 2000)	
		DOF	Landis	DOF	Landis
Sonoma	Bay Area	796,792	845,837	1.5%	1.4%
Merced	North SJ Valley	625,313	537,166	1.1%	1.2%
San Joaquin	North SJ Valley	1,707,599	1,454,089	2.2%	1.8%
Stanislaus	North SJ Valley	941,562	1,160,376	2.2%	1.9%
El Dorado	Sac. Region	282,331	381,668	1.5%	1.9%
Placer	Sac. Region	657,385	598,462	1.2%	1.7%
Sacramento	Sac. Region	2,858,427	2,409,784	2.0%	1.8%
Sutter	Sac. Region	154,210	173,672	1.7%	1.4%
Yuba	Sac. Region	407,691	341,228	1.3%	1.5%
Yolo	Sac. Region	125,650	124,998	1.5%	1.3%
Butte	Northern CA	287,130	483,980	0.7%	1.7%
Colusa	Northern CA	35,544	82,055	1.3%	2.8%
Del Norte	Northern CA	32,890	56,955	0.3%	1.2%
Glenn	Northern CA	40,167	88,790	0.8%	2.2%
Humboldt	Northern CA	139,692	158,279	0.2%	0.4%
Lake	Northern CA	109,488	148,122	1.2%	1.8%
Lassen	Northern CA	39,510	69,607	0.3%	1.3%
Mendocino	Northern CA	118,621	169,149	0.6%	1.3%
Modoc	Northern CA	7,999	16,629	-0.3%	0.9%
Nevada	Northern CA	155,161	185,998	1.0%	0.9%
Plumas	Northern CA	19,413	26,612	-0.1%	0.5%
Shasta	Northern CA	334,348	329,849	1.4%	1.3%
Sierra	Northern CA	4,895	3,678	0.6%	0.1%
Siskiyou	Northern CA	43,045	68,588	-0.1%	0.8%
Tehama	Northern CA	88,006	131,321	0.9%	1.7%
Trinity	Northern CA	12,923	18,300	0.0%	0.6%
California		**54,777,700**	**66,906,185**	**1.0%**	**1.3%**

The U.S. Bureau of Labor Statistics (BLS) has tracked LFPRs since 1950, and has prepared forecasts out to 2050[5]. A key element of understanding how LFPRs will change over time is to track workforce participation by age, as presented in Table 2.15. As we know about the aging of the population, it is not unexpected to learn that the over-55 age group is projected to increase by almost 50 percent as its share of the total U.S. workforce in 2050.

Table 2.15 Distribution of Labor Force by Age – 2000 and 2050

Age Group	2000	2050
16-24	16.1%	16.3%
25-55	71.0%	64.9%
Over 55	12.9%	18.8%

Source: U.S. Bureau of Labor Statistics (BLS).

The BLS goes on to state that "Labor force participation rates by age and sex cohorts are projected to remain roughly equal from 2000 to 2005; the major demographic change is the increase in elderly as a portion of the total population. However, the overall labor force participation rate is projected to decline precisely because the elderly will make up ever higher percentages of the nation's total population. While the elderly labor participation rates are not expected to change much into the future, the elderly are still much less likely to work than are younger age cohorts." This is demonstrated in Table 2.16.

Long-term forecasts of the unemployment rate and jobs to worker ratios have not been researched for this project, although a recent TRB paper from Pisarski is noted[6] for helping to understand definitions of workers and the workers to job ratio. Unemployment trends may be referenced from a variety of sources.

[5] U.S. Bureau of Labor Statistics, A Century of Change, U.S. Labor Force 1950-2050, Monthly Labor Review, May 2002.

[6] Pisarski, A. E., *Workers in the Decennial Census and in the ACS, Census Data for Transportation Planning: Preparing for the Future*, May 11 to 13, 2005, Transportation Research Board, http://trb.org/conferences/censusdata/presentations/5-11-2-Pisarski.pdf.

Table 2.16 Labor Force Participation Rates by Selected Age Groups

	Labor Force Participation Rates (Percent)		Age Group as Percent of Total Workforce	
Age Group	**2000**	**2050**	**2000**	**2050**
16-24	65.9	65.5	16.4	15.3
25-34	84.6	87.3	17.8	16.2
35-44	84.8	86.2	21.3	15.8
45-54	82.6	83.4	17.6	14.4
55-64	59.2	60.3	11.3	13.8
65+	12.8	13.4	15.6	24.5
Total	**67.2%**	**61.5%**	**100.0**	**100.0**

Source: United States Bureau of Labor Statistics (BLS).

3.0 Base Year Travel Patterns

Base year travel patterns are established for the purposes of validating the base year high speed rail statewide model. The data collected to calibrate these models are described in the Task 4e Data Collection Report. The three modes of interest are air, passenger rail, and auto. The travel patterns for these three modes are described below.

3.1 AIR TRAVEL

Airport Activity Forecasts

Air passenger trips are forecast to grow substantially over the next 25 years, both at the national level and for California airports. The FAA and CalTrans produce regular forecasts of aviation growth. In the large metropolitan areas, local planning agencies have expanded upon the Federal and state forecasts to address their regional transportation planning requirements. The alternative forecasts are summarized below.

FAA Airport Demand Forecasts

At the national level, the FAA predicts air travel growth through 2030 with its *Long Range Aerospace Forecasts*.[7] The forecasts include estimates of future year passenger enplanements by airline carrier type and air freight revenue ton miles (RTMs), as well as projections of the U.S. aircraft fleet.

Table 3.1 summarizes the long range forecasts. In the period from 2004 to 2030, domestic enplanements for mainline air carriers are expected to double from 502 million per year to 1.06 billion per year. Regional/commuter service enplanements are forecast to triple from 128.9 million per year to 394 million per year. The number of large passenger jets in the U.S. fleet is forecast to grow from about 4,000 to 8,900 by 2030, while the number of regional jets is expected to grow from about 1,000 to 4,300. These relative growth rates are reflective of recent trends to serve short- and mid-range air markets with regional jets. Based on these forecasts, it is likely that California intrastate air service for most routes will be provided by regional jets.

[7] See <<www>>, accessed October 2005.

Table 3.1 FAA National Forecasts of Aviation Demand

		Short-Range Forecasts			Long-Range Forecasts			Growth
	2004 Actual	2005	2010	2015	2020	2025	2030	2004-2030
Enplanements (in millions)								
Mainline Carriers								
Domestic	502.2	505.7	588	679	787.1	912.5	1,059.9	111%
International	134	145.4	185.6	224.5	268.8	319.5	378	182%
Regional/Commuter	128.9	148.9	196.1	236.7	283.6	335.8	394.1	206%
Freight RTMs	35.1	37	47.5	60.8	77.5	98.6	125.9	259%
Aircraft Fleets (in thousands)								
Mainline Carriers								
Large Jets	4	4.1	5	5.8	6.7	7.7	8.9	123%
Cargo Jets	1	1	1.1	1.3	1.4	1.6	1.8	80%
Regional/Commuter								
Regional Jets	1.6	1.9	2.5	2.9	3.3	3.8	4.3	169%
Turboprops	1.2	1.2	1	1	1	1	0.9	-25%

Source: FAA Long Range Aerospace Forecasts, 2004-2030.

The FAA *Terminal Area Forecasts* project demand for each of the towered airports in the U.S. through 2020.[8] As Table 3.2 shows, the aviation growth rate for the Western Pacific states is expected to be similar to that of the U.S., as a whole, with each growing about 76 percent between 2003 and 2020.

The forecasts from the two FAA sources are slightly different than each other, because they are based on different base years. As the long range forecasts are updated, they are made to reflect the most recently available version of the Terminal Area Forecasts. The FAA has overestimated the growth for the past few years as air travel growth levels have remained somewhat flat.

Table 3.2 Enplanement Forecasts (in Millions) for the Western Pacific States

Year	National	Growth from 2003	Western Pacific	Growth from 2003
1999 – Actual	675.566		139.613	
2000 – Actual	704.897		147.357	
2001 – Actual	693.186		144.571	
2002 – Actual	627.676		128.87	
2003 – Actual	643.917		133.406	
2004	686.167	6.6%	142.642	6.9%
2005	720.894	12.0%	148.957	11.7%
2010	855.817	32.9%	177.77	33.3%
2015	989.076	53.6%	205.244	53.8%
2020	1,130.979	75.6%	234.828	76.0%

Source: FAA Terminal Area Forecasts.

Table 3.3 shows the predicted passenger enplanements from the *Terminal Area Forecasts* for individual California airports. The FAA forecasts are appealing, because they are based on a consistent set of assumptions about the demand for air travel, and, therefore, are not affected by regional planning philosophies. On the other hand, the forecasts do not account for real local issues of supply that will undoubtedly affect air travel growth. For instance, the FAA forecasts enplanements at Los Angeles International (LAX) to reach 41 million by 2015 and 48 million by 2020 (equivalent to 82 million and 96 million air passengers), while the airport capacity has been established to be 78 million annual air passengers.

[8] See <<www>>, accessed October 2005.

Table 3.3 Enplanement Forecasts (in Millions) for California Airports

ID	Airport	City	Carrier Type	1990	1995	2000	2005	2010	2015	2020
ACV	Arcata	Arcata/Eureka	Large Air Carriers	54,313	1,127	10	17	17	17	17
			Air Taxi/ Commuters	13,586	84,167	110,584	92,893	107,386	121,880	136,374
			Total Enplanements	67,899	85,294	110,594	92,910	107,403	121,897	136,391
BFL	Meadows Field	Bakersfield	Large Air Carriers	101,920	37,312	7,539	746	746	746	746
			Air Taxi/ Commuters	36,091	73,385	143,260	95,003	110,040	125,076	140,113
			Total Enplanements	138,011	110,697	150,799	95,749	110,786	125,822	140,859
BUR	Burbank-Glendale-Pasadena	Burbank	Large Air Carriers	1,699,823	2,417,140	2,371,364	2,335,441	2,631,926	2,885,965	3,161,418
			Air Taxi/ Commuters	25,892	54,094	1	248,589	319,893	391,441	476,240
			Total Enplanements	1,725,715	2,471,234	2,371,365	2,584,030	2,951,819	3,277,406	3,637,658
CEC	Jack McNamara Field	Crescent City	Large Air Carriers	–	–	–	–	–	–	–
			Air Taxi/ Commuters	2,497	6,707	15,151	11,262	12,097	12,933	13,769
			Total Enplanements	2,497	6,707	15,151	11,262	12,097	12,933	13,769
CIC	Chico Muni	Chico	Large Air Carriers	–	136	216	–	–	–	–
			Air Taxi/ Commuters	14,717	16,541	32,466	16,687	19,004	21,321	23,639
			Total Enplanements	14,717	16,677	32,682	16,687	19,004	21,321	23,639
CRQ	McClellan-Palomar	Carlsbad	Large Air Carriers	–	–	–	–	–	–	–
			Air Taxi/ Commuters	1,478	27,706	78,519	51,642	64,594	77,547	90,501
			Total Enplanements	1,478	27,706	78,519	51,642	64,594	77,547	90,501
FAT	Fresno Yosemite International	Fresno	Large Air Carriers	396,223	167,766	75,362	117,322	117,322	117,322	117,322
			Air Taxi/ Commuters	64,343	289,967	428,327	489,804	537,304	584,803	632,303
			Total Enplanements	460,566	457,733	503,689	607,126	654,626	702,125	749,625

Table 3.3 Enplanement Forecasts (in Millions) for California Airports (continued)

ID	Airport	City	Carrier Type	1990	1995	2000	2005	2010	2015	2020
IPL	Imperial County	Imperial	Large Air Carriers	–	–	–	–	–	–	–
			Air Taxi/ Commuters	–	16,343	24,127	9,736	9,736	9,736	9,736
			Total Enplanements	–	16,343	24,127	9,736	9,736	9,736	9,736
IYK	Inyokern	Inyokern	Large Air Carriers	–	–	–	–	–	–	–
			Air Taxi/ Commuters	18,490	22,923	12,722	11,569	11,569	11,569	11,569
			Total Enplanements	18,490	22,923	12,722	11,569	11,569	11,569	11,569
LAX	Los Angeles Intl	Los Angeles	Large Air Carriers	21706852	25030891	30737687	27807284	32796285	37639167	43476870
			Air Taxi/ Commuters	569,532	1,115,894	1,415,412	2,028,350	2,849,098	3,702,502	4,825,240
			Total Enplanements	22276384	26146785	32153099	29835634	35645383	41341669	48302110
LGB	Long Beach/ Daughterty Field	Long Beach	Large Air Carriers	692,995	183,914	349,266	1,432,351	1,817,175	2,139,561	2,497,259
			Air Taxi/ Commuters	115	650	–	55,773	71,768	87,818	106,840
			Total Enplanements	693,110	184,564	349,266	1,488,124	1,888,943	2,227,379	2,604,099
MCE	Merced Municipal/ Macready Field	Merced	Large Air Carriers	–	1,154	–	100	100	100	100
			Air Taxi/ Commuters	6,055	5,514	4,670	6,651	6,651	6,651	6,651
			Total Enplanements	6,055	6,668	4,670	6,751	6,751	6,751	6,751
MOD	Modesto City-Co – Harry Sham Fld	Modesto	Large Air Carriers	–	708	128	–	–	–	–
			Air Taxi/ Commuters	27,773	19,507	26,564	13,954	15,225	16,496	17,768
			Total Enplanements	27,773	20,215	26,692	13,954	15,225	16,496	17,768
MRY	Monterey Peninsula	Monterey	Large Air Carriers	170,511	61,676	24,001	1,709	1,709	1,709	1,709
			Air Taxi/ Commuters	69,243	151,696	214,088	156,129	177,834	199,539	221,245
			Total Enplanements	239,754	213,372	238,089	157,838	179,543	201,248	222,954

Table 3.3 Enplanement Forecasts (in Millions) for California Airports (continued)

ID	Airport	City	Carrier Type	1990	1995	2000	2005	2010	2015	2020
OAK	Metropolitan Oakland Intl	Oakland	Large Air Carriers	2,707,091	4,698,250	5,087,602	6,996,194	8,808,701	10384114	12254025
			Air Taxi/ Commuters	13,411	22,690	–	211,746	272,228	333,115	405,279
			Total Enplanements	2,720,502	4,720,940	5,087,602	7,207,940	9,080,929	10717229	12659304
ONT	Ontario Intl	Ontario	Large Air Carriers	2,643,948	3,174,895	3,119,309	3,096,820	3,645,050	4,149,960	4,733,547
			Air Taxi/ Commuters	25,661	59,366	60,993	227,496	284,028	347,556	421,629
			Total Enplanements	2,669,609	3,234,261	3,180,302	3,324,316	3,929,078	4,497,516	5,155,176
OXR	Oxnard	Oxnard	Large Air Carriers	–	–	–	–	–	–	–
			Air Taxi/ Commuters	42,946	38,072	39,894	21,858	23,116	24,376	25,636
			Total Enplanements	42,946	38,072	39,894	21,858	23,116	24,376	25,636
PMD	Palmdale Prodn Flt/ Test Instln AF Plant 42	Palmdale	Large Air Carriers	19,779	24	65	–	–	–	–
			Air Taxi/ Commuters	5,732	10,570	29	–	–	–	–
			Total Enplanements	25,511	10,594	94	–	–	–	–
PSP	Palm Springs International	Palm Springs	Large Air Carriers	370,776	288,059	420,424	387,215	418,848	450,483	482,119
			Air Taxi/ Commuters	79,624	169,364	235,817	301,446	364,389	427,333	490,278
			Total Enplanements	450,400	457,423	656,241	688,661	783,237	877,816	972,397
RDD	Redding Muni	Redding	Large Air Carriers	41,160	276	1,264	422	422	422	422
			Air Taxi/ Commuters	84,327	60,697	73,428	55,299	66,411	77,525	88,639
			Total Enplanements	125,487	60,973	74,692	55,721	66,833	77,947	89,061
RIV	March ARB	Riverside	Large Air Carriers	–	–	7,075	2,612	2,612	2,612	2,612
			Air Taxi/ Commuters	–	–	–	–	–	–	–
			Total Enplanements	–	–	7,075	2,612	2,612	2,612	2,612

Table 3.3 Enplanement Forecasts (in Millions) for California Airports (continued)

ID	Airport	City	Carrier Type	1990	1995	2000	2005	2010	2015	2020
SAN	San Diego Intl – Lindbergh Fld	San Diego	Large Air Carriers	5,289,764	6,324,189	7,468,379	7,939,426	9,179,116	10322835	11609151
			Air Taxi/ Commuters	197,744	301,861	377,450	577,130	741,445	919,518	1,103,749
			Total Enplanements	5,487,508	6,626,050	7,845,829	8,516,556	9,920,561	11242353	12712900
SBA	Santa Barbara Muni	Santa Barbara	Large Air Carriers	227,527	101,460	193,715	204	214	228	242
			Air Taxi/ Commuters	80,883	160,466	201,740	433,146	481,841	530,537	579,234
			Total Enplanements	308,410	261,926	395,455	433,350	482,055	530,765	579,476
SBP	San Luis County Regional	San Luis Obispo	Large Air Carriers	–	–	–	–	–	–	–
			Air Taxi/ Commuters	81,654	120,058	149,084	153,601	178,720	203,840	228,960
			Total Enplanements	81,654	120,058	149,084	153,601	178,720	203,840	228,960
SCK	Stockton Metropolitan	Stockton	Large Air Carriers	44,333	830	324	981	981	981	981
			Air Taxi/ Commuters	17,671	6,068	–	–	–	–	–
			Total Enplanements	62,004	6,898	324	981	981	981	981
SFO	San Francisco International	San Francisco	Large Air Carriers	14599154	16179584	19023989	14590062	18428139	21515067	24572462
			Air Taxi/ Commuters	92,625	707,763	623,527	1,259,254	1,522,970	1,770,682	2,042,751
			Total Enplanements	14691779	16887347	19647516	15849316	19951109	23285749	26615,13
SJC	Norman Y. Mineta San Jose International	San Jose	Large Air Carriers	3,166,035	4,265,347	5,964,533	4,737,378	6,033,165	7,386,090	8,921,309
			Air Taxi/ Commuters	178,636	70,559	60,302	531,000	684,604	836,931	1,015,309
			Total Enplanements	3,344,671	4,335,906	6,024,835	5,268,378	6,717,769	8,223,021	9,936,618
SMF	Sacramento International	Sacramento	Large Air Carriers	1,737,782	3,099,836	3,724,140	4,423,834	5,127,359	5,830,885	6,534,412
			Air Taxi/ Commuters	69,054	208,540	230,718	325,696	375,595	425,494	475,394
			Total Enplanements	1,806,836	3,308,376	3,954,858	4,749,530	5,502,954	6,256,379	7,009,806

Table 3.3 Enplanement Forecasts (in Millions) for California Airports (continued)

ID	Airport	City	Carrier Type	1990	1995	2000	2005	2010	2015	2020
SMX	Santa Maria Public/Capt G Allan Hancock Fld	Santa Maria	Large Air Carriers	7,761	3,386	1,332	2,175	2,175	2,175	2,175
			Air Taxi/ Commuters	32,968	57,680	44,371	36,808	40,799	44,791	48,783
			Total Enplanements	40,729	61,066	45,703	38,983	42,974	46,966	50,958
SNA	John Wayne Airport – Orange County	Santa Ana	Large Air Carriers	2,203,848	3,438,679	3,834,105	4,316,092	5,032,360	5,693,616	6,366,730
			Air Taxi/ Commuters	77,751	82,681	83,064	264,447	340,304	416,421	506,635
			Total Enplanements	2,281,599	3,521,360	3,917,169	4,580,539	5,372,664	6,110,037	6,873,365
STS	Sonoma County	Santa Rosa	Large Air Carriers	–	1,214	–	–	–	–	–
			Air Taxi/ Commuters	64,368	27,299	37,086	–	–	–	–
			Total Enplanements	64,368	28,513	37,086	–	–	–	–
TVL	Lake Tahoe	South Lake Tahoe	Large Air Carriers	41,100	17,356	3,900	–	–	–	–
			Air Taxi/ Commuters	27,000	6,103	–	–	–	–	–
			Total Enplanements	68,100	23,459	3,900	–	–	–	–
VBG	Vandenberg AFB	Santa Barbara	Large Air Carriers	–	–	354	466	466	466	466
			Air Taxi/ Commuters	–	–	–	–	–	–	–
			Total Enplanements	–	–	354	466	466	466	466
VCV	Southern California Logistics	Victorville	Large Air Carriers	–	–	43,751	3,049	3,387	3,726	4,065
			Air Taxi/ Commuters	–	–	–	2,894	2,894	2,894	2,894
			Total Enplanements	–	–	43,751	5,943	6,281	6,620	6,959
VIS	Visalia Muni	Visalia	Large Air Carriers	–	1,976	–	–	–	–	–
			Air Taxi/ Commuters	8,328	7,054	10,729	2,851	2,851	2,851	2,851
			Total Enplanements	8,328	9,030	10,729	2,851	2,851	2,851	2,851
VNY	Van Nuys	Van Nuys	Large Air Carriers	–	–	114	–	–	–	–
			Air Taxi/ Commuters	–	–	–	–	–	–	–
			Total Enplanements	–	–	114	–	–	–	–

Source: FAA Terminal Area Forecasts.

The FAA forecasts do not reflect future airport capacity issues (either operational or policy constraints) except to the extent that these constraints are already affecting air travel demand.

California Aviation System Plan Forecasts

Caltrans also forecasts aviation demand at the state's airports. These forecasts incorporate the FAA forecasts, but also account for local issues. These forecasts will be summarized and reviewed after delivery by Caltrans.

Regional Aviation Planning Forecasts

The CASP and FAA forecasts are used as inputs to local area regional transportation plans. The MPO aviation forecasts are summarized below.

MTC

MTC's regional aviation demand forecasts for Oakland (OAK), San Francisco (SFO), and San Jose (SJC), developed in February 2000, are summarized on the MTC web site.[9] Table 3.4 and 3.5 reproduce the forecast summaries developed by MTC.

Table 3.4 shows MTC's passenger estimates for 1998 and forecasts for 2020 by airport and passenger destination category. The MTC forecasts about 24.8 million passengers (12.4 million enplanements) for Oakland, compared to the FAA forecasts of 12.7 million enplanements. MTC forecasts San Francisco passengers at 61.1 million (30.6 million enplanements) by 2020. The FAA forecasts for SFO are 26.6 million. The MTC San Jose forecasts are 25.3 million (12.6 million enplanements), compared to the FAA forecasts of 9.9 million enplanements.

Table 3.5 shows the MTC forecasts of the local area distribution of air passenger trips by airport.

[9] <<www>>

Table 3.4 MTC Air Passenger Forecasts

Passenger Destinations	OAK	SFO	SJC	Total
1998				
California	4,770,325	6,551,029	3,976,190	15,297,544
Western U.S.	3,048,632	7,049,171	3,376,613	13,474,416
Central U.S.	1,122,881	7,219,471	2,171,907	10,514,259
Eastern U.S.	70,488	7,630,789	437,309	8,138,586
Hawaii	723	2,313,911	0	2,314,634
Alaska	244	44,287	0	44,531
Total Domestic	9,013,293	30,808,658	9,962,019	49,783,970
Total International	145,243	6,298,427	346,127	6,789,797
Total All Passengers	**9,158,536**	**37,107,085**	**10,308,146**	**56,573,767**
2020				
California	7,832,860	12,933,228	7,900,559	28,666,647
Western U.S.	8,651,648	10,633,584	7,736,908	27,022,140
Central U.S.	4,619,010	10,176,214	4,184,562	18,979,786
Eastern U.S.	2,160,513	10,148,495	1,791,632	14,100,640
Hawaii	381,645	2,015,308	317,809	2,714,762
Alaska	0	94,353	0	94,353
Total Domestic	23,645,676	46,001,182	21,931,470	91,578,328
Total International	1,093,986	15,114,668	3,346,441	19,555,096
Total All Passengers	**24,739,663**	**61,115,850**	**25,277,911**	**111,133424**

Source: MTC Regional Airport Plan, February 2000. See www.mtc.ca.gov/planning/air_plan/ES1.htm.

Table 3.5 MTC Forecast of Bay Area Air Passenger Distribution

Bay Area County	OAK	SFO	SJC	Total
Alameda	8,358,697	1,967,607	1,147,360	**11,473,671**
Contra Costa	5,131,216	1,301,242	256,024	**6,688,481**
Marin	765,815	1,786,901	0	**2,552,715**
Napa	789,749	646,159	0	**1,435,908**
San Francisco	4,185,983	20,437,449	0	**24,623,432**
San Mateo	368,085	10,061,002	1,840,420	**12,269,514**
Santa Clara	381,715	2,072,386	16,631,699	**19,085,727**
Solano	1,955,218	837,950	0	**2,793,168**
Sonoma	793,490	1,851,476	0	**2,644,965**
Out of Region	1,020,109	1,848,947	3,506,620	**6,375,681**
Connecting Passengers	989,587	18,304,731	1,878,170	**21,184,101**
Total Passengers	**24,739,663**	**61,115,850**	**25,277,911**	**111,127,364**

Source: MTC Regional Airport Plan, February 2000. See www.mtc.ca.gov/planning/air_plan/ES2.htm.

SCAG

The technical appendix to the 2004 Regional Transportation Plan describes the most recently adopted aviation forecasts for SCAG.[10] The SCAG Aviation Task Force had established several aviation plan variations for the previous (2001) RTP with differing assumptions regarding airport operational capacity constraints and policies. These future scenarios were re-analyzed in more detail for the current Plan in light of several intervening developments, including:

- The impacts of the September 11, 2001 terrorist attacks;
- The economic downturn;
- Orange County's Measure "W" which passed in March 2002 eliminating El Toro as a commercial airport;
- Physical and political problems with expanding Ontario Airport beyond existing physical capacity; and
- March Inland Port's intention to focus on air cargo rather than air service, although they have not specifically precluded passenger service over the long term.

[10] http://www.scag.ca.gov/rtp2004/2004draft/techappendix/FinalTechAppend.htm.

The new year 2030 forecasts for the different scenarios are shown in Table 3.6. The differences in the scenarios demonstrate the significant effect of the airport capacity constraints in Southern California.

The preferred aviation plan relies on several "basic assumptions," including the following:

- LAX: Existing physical (runway) capacity of 78 million air passengers;
- BUR: Three new remote terminal gates assumed, increasing its physical capacity to 10.7 million air passengers;
- LGB: Larger aircraft with higher load factors assumed within the 41 flights per day airport restriction, increasing its capacity to 3.8 million air passengers;
- SNA: New Settlement Agreement Constraint of 10.8 million air passengers;
- ONT: Existing physical (runway) capacity of 30 million air passengers;
- SBD, PMD, MAR, and SCL all unconstrained for passenger service;
- Inter-airport maglev system assumed;
- Significant airport ground access improvements; and
- Market incentives assumed.

Table 3.6 SCAG 2030 Air Passenger Forecast Scenarios (in Millions)

Scenario	BUR	LAX	LGB	MAR	ONT	PSP	PMD	SBD	SCL	SNA	Total
Constrained (No HSR)	9.6	78.0	3.0	1.0	30.0	2.9	2.2	2.5	0.8	10.8	**140.8**
Moderate (ONT 3 runways)	10.6	78.0	3.8	4.3	34.0	2.9	2.9	2.0	0.8	10.8	**150.2**
Revised Moderate (ONT 3 runways)	10.7	78.0	3.8	4.9	29.9	2.9	3.4	9.2	0.9	10.8	**154.6**
Preferred Aviation Plan	10.7	78.0	3.8	8.0	30.0	3.2	12.8	8.7	4.0	10.8	**170.0**
Preferred Aviation Plan (No HSR)	10.7	78.0	3.8	5.0	28.8	3.2	7.2	5.7	1.8	10.8	**155.0**
Unconstrained											**192.0**

Source: SCAG Regional Transportation Plan Technical Appendix.

Airline Passenger Demand

The U.S. Department of Transportation assembles and disseminates several databases summarizing passenger airline demand. The different databases each provide useful information for understanding the demand conditions that are relevant to our study, but no single data source provides everything we would like to have. Therefore, a combination of the databases will be used for our analyses.

Some of the relevant U.S. DOT databases include:

- T-100 Domestic Segment Database – provides monthly supply and demand information on all direct flights between U.S. airports;
- T-100 Domestic Market Database – provides demand summaries for passengers boarding and de-boarding aircraft;
- Origin-Destination Ticket Sample Databases – provides detailed information (including itinerary details and fares) from 10 percent of airline tickets in three databases:
  - O&D Coupon Database – each record represents a single leg of a trip from the airline tickets;
  - O&D Market Database – each record represents a complete origin-destination trip from the airline tickets;
  - O&D Itinerary Database – each record represents the full travel itinerary represented on the tickets (including round-trips and more complicated itineraries).

Figure 3.1 is a schematic of how the T-100 and O&D databases record passenger trips with different routings and airline types. The first several trips represented in the figure involve travel from airport "AAA" to airport "CCC" by different routings, including connections through airport "BBB." For most of our analyses, we would want to understand the travel volumes between the true origin and destination airports, AAA and CCC. In many cases, this information will be captured in the O&D market database.

The last eight trips show how trips that travel between AAA and CCC as part of longer itineraries. In general, where the data are available, the O&D market database correctly identifies these trips as not part of the AAA-CCC air market.

However, it is important to note that unlike the T-100 databases the O&D databases are subject to sampling error. In addition, the O&D databases generally will not include tickets for passengers with itineraries that begin on airlines classified by FAA as "Small Certificated Air Carriers," those airlines who do not fly any planes with more than 60 seats.

Figure 3.1 Passenger Trip Information Reported In U.S. DOT Databases

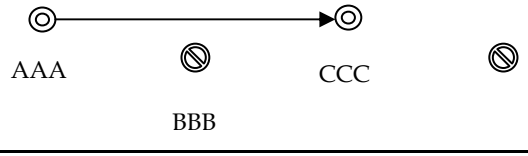
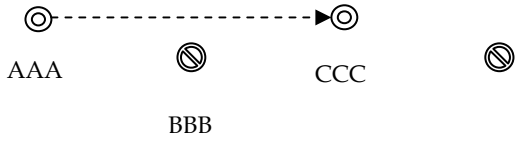
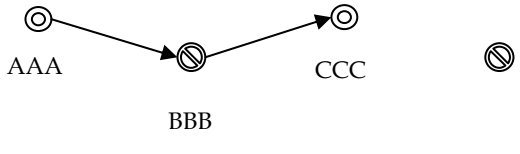
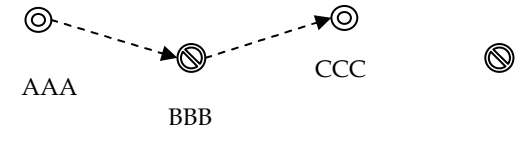
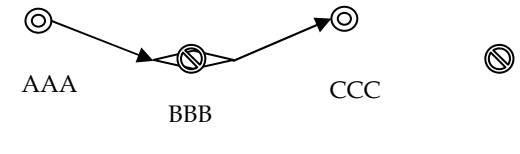
Trip	Trip Description	T100 Segment (Count)	T100 Market (Count)	O&D Coupon (Sample Data)	O&D Market (Sample Data)
	Passenger flies on a major airline (MM) directly from AAA to CCC.	1. AAA-CCC (MM)	1. AAA-CCC (MM)	1. AAA-CCC (MM)	1. AAA-CCC (MM)
	Passenger flies on a commuter / regional airline (RR) directly from AAA to CCC.	1. AAA-CCC (RR)	1. AAA-CCC (RR)	No data	No data
	Passenger flies on a major airline (MM) from AAA to CCC with one stop (no plane change) at BBB.	1. AAA-BBB (MM) 2. BBB-CCC (MM)	1. AAA-CCC (MM)	1. AAA-CCC (MM)	1. AAA-CCC (MM)
	Passenger flies on a commuter / regional airline (RR) from AAA to CCC with one stop (no plane change) at BBB.	1. AAA-BBB (RR) 2. BBB-CCC (RR)	1. AAA-CCC (RR)	No data	No data
	Passenger flies on a major airline (MM) from AAA to BBB, changes to a plane from the same airline and continues to CCC.	1. AAA-BBB (MM) 2. BBB-CCC (MM)	1. AAA-BBB (MM) 2. BBB-CCC (MM)	1. AAA-BBB (MM) 2. BBB-CCC (MM)	1. AAA-CCC (MM)

Figure 3.1 Passenger Trip Information Reported In U.S. DOT Databases (continued)

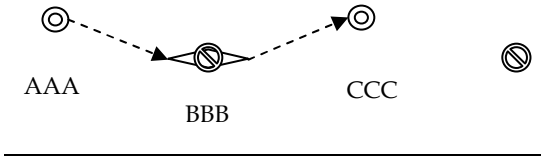
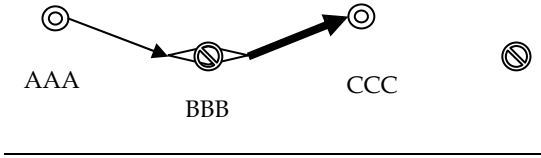
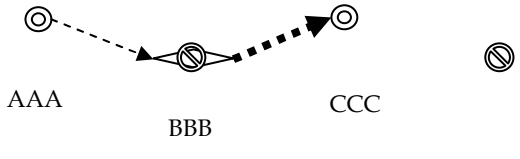
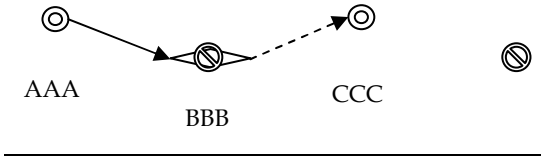
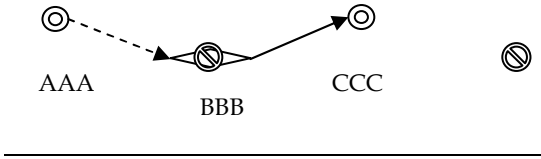
Trip	Trip Description	T100 Segment (Count)	T100 Market (Count)	O&D Coupon (Sample Data)	O&D Market (Sample Data)
	Passenger flies on a commuter / regional airline (RR) from AAA to BBB, changes to a plane from the same airline and continues to CCC.	1. AAA-BBB (RR) 2. BBB-CCC (RR)	1. AAA-BBB (RR) 2. BBB-CCC (RR)	No data	No data
	Passenger flies on a major airline (MM) from AAA to BBB, changes to a plane from a different major airline (NN) and continues to CCC.	1. AAA-BBB (MM) 2. BBB-CCC (NN)	1. AAA-BBB (MM) 2. BBB-CCC (NN)	1. AAA-BBB (MM) 2. BBB-CCC (NN)	1. AAA-CCC (MM,NN)
	Passenger flies on a commuter / regional airline (RR) from AAA to BBB, changes to a plane from a different commuter / regional airline (SS) and continues to CCC.	1. AAA-BBB (RR) 2. BBB-CCC (SS)	1. AAA-BBB (RR) 2. BBB-CCC (SS)	No data	No data
	Passenger flies on a major airline (MM) from AAA to BBB, changes to a plane from a commuter / regional airline (RR) and continues to CCC.	1. AAA-BBB (MM) 2. BBB-CCC (RR)	1. AAA-BBB (MM) 2. BBB-CCC (RR)	1. AAA-BBB (MM) 2. BBB-CCC (RR)	1. AAA-CCC (MM,RR)
	Passenger flies on a commuter / regional airline (RR) from AAA to BBB, changes to a plane from a major airline (MM) and continues to CCC.	1. AAA-BBB (RR) 2. BBB-CCC (MM)	1. AAA-BBB (RR) 2. BBB-CCC (MM)	No data	No data

Figure 3.1 Passenger Trip Information Reported In U.S. DOT Databases (continued)

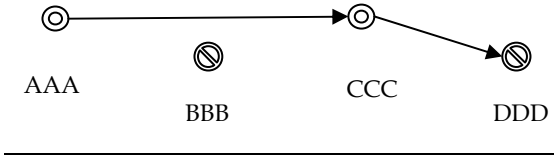
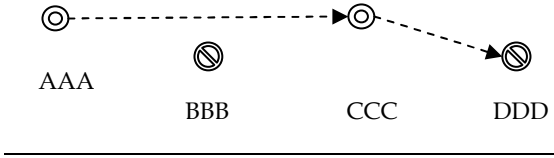
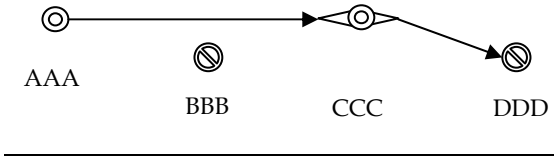
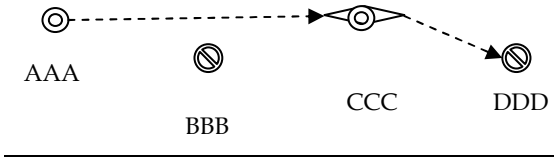
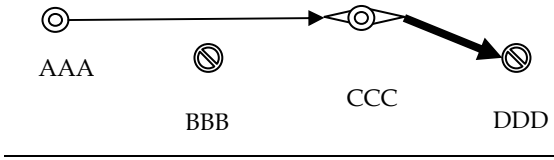
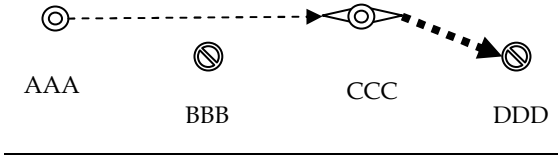
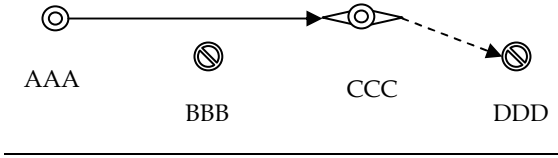
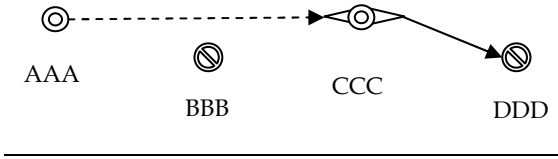
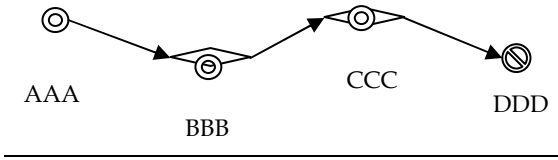
Trip	Trip Description	T100 Segment (Count)	T100 Market (Count)	O&D Coupon (Sample Data)	O&D Market (Sample Data)
	Passenger flies on a major airline (MM) from AAA to DDD with one stop (no plane change) at CCC.	1. AAA-CCC (MM) 2. CCC-DDD (MM)	1. AAA-DDD (MM)	1. AAA-DDD (MM)	1. AAA-DDD (MM)
	Passenger flies on a commuter / regional airline (RR) from AAA to DDD with one stop (no plane change) at CCC.	1. AAA-CCC (RR) 2. CCC-DDD (RR)	1. AAA-DDD (RR)	No data	No data
	Passenger flies on a major airline (MM) from AAA to CCC, changes to a plane from the same airline and continues to DDD.	1. AAA-CCC (MM) 2. CCC-DDD (MM)	1. AAA-CCC (MM) 2. CCC-DDD (MM)	1. AAA-CCC (MM) 2. CCC-DDD (MM)	1. AAA-DDD (MM)
	Passenger flies on a commuter / regional airline (RR) from AAA to CCC, changes to a plane from the same airline and continues to DDD.	1. AAA-CCC (RR) 2. CCC-DDD (RR)	1. AAA-CCC (RR) 2. CCC-DDD (RR)	No data	No data
	Passenger flies on a major airline (MM) from AAA to CCC, changes to a plane from a different major airline (NN) and continues to DDD.	1. AAA-CCC (MM) 2. CCC-DDD (NN)	1. AAA-CCC (MM) 2. CCC-DDD (NN)	1. AAA-CCC (MM) 2. CCC-DDD (NN)	1. AAA-DDD (MM,NN)

Figure 3.1 Passenger Trip Information Reported In U.S. DOT Databases (continued)

Trip	Trip Description	T100 Segment (Count)	T100 Market (Count)	O&D Coupon (Sample Data)	O&D Market (Sample Data)
	Passenger flies on a commuter / regional airline (RR) from AAA to CCC, changes to a plane from a different commuter / regional airline (SS) and continues to DDD.	1. AAA-CCC (RR) 2. CCC-DDD (SS)	1. AAA-CCC (RR) 2. CCC-DDD (SS)	No data	No data
	Passenger flies on a major airline (MM) from AAA to CCC, changes to a plane from a commuter / regional airline (RR) and continues to DDD.	1. AAA-CCC (MM) 2. CCC-DDD (RR)	1. AAA-CCC (MM) 2. CCC-DDD (RR)	1. AAA-CCC (MM) 2. CCC-DDD (RR)	1. AAA-DDD (MM,RR)
	Passenger flies on a commuter / regional airline (RR) from AAA to CCC, changes to a plane from a major airline (MM) and continues to DDD.	1. AAA-CCC (RR) 2. CCC-DDD (MM)	1. AAA-CCC (RR) 2. CCC-DDD (MM)	No data	No data
	Passenger flies on a major airline (MM) from AAA to BBB, changes to a plane from the same airline and continues to CCC, changes again and goes to DDD.	1. AAA-BBB (MM) 2. BBB-CCC (MM) 3. CCC-DDD (MM)	1. AAA-BBB (MM) 2. BBB-CCC (MM) 3. CCC-DDD (MM)	1. AAA-BBB (MM) 2. BBB-CCC (MM) 3. CCC-DDD (MM)	1. AAA-DDD (MM)

Therefore, while the O&D market database probably represents the best readily-available estimate of true origin-destination passenger activity, we are analyzing the data to see whether it may be possible to improve these estimates by combining information from the T-100 data and O&D coupon database. The individual datasets are summarized below.

T-100 Segment Database

The T-100 Domestic Segment Database includes monthly information on all direct flights between U.S. airports. The data compiled for each airport origin-destination pair with air service are as follows:

- The number of scheduled and operated flights by airline and aircraft type;
- The number of available seats on those flights; and
- The number of passengers (or occupied seats) on the segment.

The passenger figures include both true origin-destination passengers, as well as passengers flying the segment as part of a multiflight journey. In addition, the passenger figures do not include true origin-destination passengers that connect through a third airport. However, despite these limitations, the segment database provides the best information on capacity and the relationship between demand and supply for individual segments.

Table 3.7 shows the number of flights operated between California airports and the number of seats on those flights for origin-destination pairs with more than 10,000 passengers in each direction. In 2004, there were a total of 377,187 flights beginning and ending within California. The highest capacity airport pairs were LAX-OAK, LAX-SFO, LAX-SJC, and OAK-SAN.

Table 3.8 shows the number of annual passengers for the airport pairs, along with the passenger load factors (passengers/available seats). A total of 19,740,000 air passengers traveled on flights between California airports in 2004. The average load factor for intra-California flights was 68 percent.

Table 3.9 shows the monthly variation in passengers for California air segments in 2004. Overall, the most active months for air travel were April and August. The least active was January.

T-100 Market Database

The T-100 Market database defines trips in terms of where a passenger boards and aircraft and where they get off of it. Thus, this database captures the true origins and destinations for direct flights, like the segment database, as well as for trips that involve en-route stops without plane changes. Because of the structure of the air transportation network, transportation supply at the true origin-destination market level is difficult to quantify or measure. Therefore, neither the T-100 Market data nor the O&D databases include transportation supply statistics.

Table 3.7 Air Transportation Supply Estimates Based on T-100 Segment Data

	Departures						Available Seats					
Segment	2000	2001	2002	2003	2004	2005 (Jan-Jun)	2000	2001	2002	2003	2004	2005 (Jan-Jun)
LAX-OAK	11,674	10,958	9,977	9,850	10,191	5,099	1,537,510	1,449,992	1,152,814	1,153,672	1,175,700	577,262
OAK-LAX	11,710	10,905	10,105	10,292	10,552	5,231	1,545,549	1,438,258	1,147,586	1,155,682	1,179,886	583,009
LAX-SFO	13,950	12,251	10,034	8,771	9,306	4,321	1,807,795	1,536,155	1,284,039	1,134,271	1,172,039	575,854
SFO-LAX	13,963	12,208	10,292	9,377	9,608	4,446	1,805,751	1,556,409	1,312,851	1,174,845	1,192,289	571,319
SAN-OAK	3,833	4,935	5,291	5,523	5,743	3,082	512,991	656,190	695,432	698,297	744,653	404,153
OAK-SAN	3,784	4,949	5,221	5,500	5,746	3,098	509,758	658,244	687,585	701,342	747,935	406,246
LAX-SJC	10,611	10,424	8,271	10,080	10,245	4,965	1,389,906	1,344,371	994,910	859,686	886,678	439,294
SJC-LAX	10,498	10,255	8,210	10,088	10,239	4,955	1,370,742	1,324,220	989,718	864,141	889,474	439,325
BUR-OAK	5,098	4,975	4,752	4,760	4,868	2,395	678,069	659,009	629,114	629,584	654,765	325,775
OAK-BUR	5,059	5,000	4,766	4,847	4,870	2,413	663,071	659,711	635,632	648,562	660,837	328,324
SAN-SJC	5,183	5,124	5,116	5,479	6,633	3,182	694,434	682,364	675,274	553,283	611,258	301,634
SJC-SAN	5,194	5,111	5,146	5,697	6,650	3,168	690,565	675,635	678,720	559,719	612,233	300,001
SAN-SMF	3,832	4,027	4,017	4,205	4,538	2,391	516,119	549,413	546,091	575,125	619,461	327,175
SMF-SAN	3,830	4,037	4,112	4,176	4,549	2,388	515,170	545,839	556,084	566,803	618,308	326,756
SNA-OAK	4,123	4,274	4,621	4,479	4,527	2,256	524,610	534,729	589,795	577,889	611,699	306,795
OAK-SNA	4,111	4,268	4,589	4,420	4,502	2,238	523,519	534,842	588,190	567,007	610,874	304,865
SMF-LAX	5,197	4,921	4,094	5,339	5,602	2,801	680,214	629,708	480,632	566,742	595,294	321,965
LAX-SMF	5,161	4,938	4,063	5,287	5,593	2,822	678,740	635,441	481,309	558,802	586,987	325,607
ONT-OAK	4,103	4,815	4,713	5,063	5,162	2,580	552,450	616,288	583,429	588,802	605,555	301,480
OAK-ONT	4,483	5,154	5,090	5,305	5,422	2,583	600,065	659,901	630,426	612,194	624,634	302,025
SMF-ONT	3,698	4,222	4,323	4,038	4,020	2,039	496,621	564,913	581,863	543,467	543,070	278,820

Table 3.7 Air Transportation Supply Estimates Based on T-100 Segment Data (continued)

	Departures						Available Seats					
Segment	2000	2001	2002	2003	2004	2005 (Jan-Jun)	2000	2001	2002	2003	2004	2005 (Jan-Jun)
ONT-SMF	3,670	4,178	4,336	3,984	4,011	2,042	494,932	563,798	587,103	540,417	542,142	279,215
SAN-LAX	12,321	11,820	11,380	15,466	14,457	7,328	639,982	509,499	364,466	510,909	505,176	241,872
LAX-SAN	12,431	11,877	11,374	15,403	14,546	7,356	650,324	517,586	358,662	501,523	538,888	244,439
SNA-SJC	5,344	4,977	4,901	4,886	5,165	2,605	722,835	649,685	644,570	492,046	495,095	254,643
SJC-SNA	5,350	4,993	4,911	4,851	5,139	2,435	722,132	652,108	645,783	487,381	491,670	233,275
SAN-SFO	6,928	4,575	3,597	3,041	3,205	1,654	903,690	591,355	477,335	408,082	440,682	235,591
SFO-SAN	6,845	4,569	3,612	2,974	3,130	1,479	894,299	589,218	474,390	409,092	446,712	221,452
SMF-BUR	3,392	3,324	3,383	3,587	3,592	1,686	451,834	445,803	454,966	482,650	483,885	230,469
BUR-SMF	3,369	3,303	3,386	3,594	3,580	1,693	452,399	446,199	454,980	478,956	481,597	231,727
BUR-SJC	2,747	2,799	3,004	2,952	3,016	1,516	367,169	376,917	395,897	387,998	409,866	207,632
SJC-BUR	2,745	2,784	2,994	2,944	2,980	1,516	370,197	371,058	393,301	389,408	402,210	207,632
SMF-SNA	1,518	1,547	1,956	2,033	2,432	1,206	200,410	204,250	263,202	273,748	332,704	165,209
SNA-SMF	1,504	1,509	1,941	2,011	2,436	1,206	198,780	199,084	261,115	271,053	333,282	165,205
LGB-OAK	0	0	872	2,485	2,163	1,132	0	0	132,762	360,534	303,336	159,350
OAK-LGB	0	0	811	2,244	1,943	1,021	0	0	132,521	360,366	303,256	159,432
SJC-ONT	2,449	3,041	2,996	2,928	2,956	1,529	331,035	412,203	401,081	384,348	393,768	209,413
ONT-SJC	2,450	3,060	2,934	2,922	2,917	1,540	331,311	412,663	392,842	387,958	388,989	210,940
SNA-SFO	3,567	3,988	3,878	3,714	3,794	1,877	550,015	587,742	452,449	379,851	399,390	152,500
SFO-SNA	3,581	3,772	3,617	3,655	3,723	1,853	549,032	578,888	448,723	383,087	403,950	162,294
BUR-SFO	3,843	3,309	2,336	2,620	2,684	1,342	477,838	408,400	281,536	233,244	205,348	95,976
SFO-BUR	3,847	3,320	2,335	2,627	2,610	1,170	478,389	410,708	282,360	233,442	202,209	89,864

Table 3.7 Air Transportation Supply Estimates Based on T-100 Segment Data (continued)

	Departures						Available Seats					
Segment	2000	2001	2002	2003	2004	2005 (Jan-Jun)	2000	2001	2002	2003	2004	2005 (Jan-Jun)
LAX-FAT	3,182	3,233	3,529	5,851	5,802	2,930	108,188	110,449	115,501	203,968	201,353	102,454
FAT-LAX	3,162	3,210	3,515	5,824	5,797	2,926	107,508	109,361	115,052	202,902	201,131	100,574
LAX-SBA	4,477	4,248	4,700	6,086	6,100	2,862	234,040	147,280	162,906	213,916	226,106	94,574
SBA-LAX	4,516	4,228	4,705	6,117	6,114	3,030	237,346	146,616	162,998	214,782	226,633	107,848
LAX-PSP	3,813	3,843	3,567	5,428	4,909	1,833	210,930	146,835	111,386	176,738	168,669	57,236
PSP-LAX	3,796	3,820	3,559	5,427	4,904	1,831	210,492	145,878	111,390	176,914	161,603	56,886
SMF-SFO	25	44	1,253	3,176	3,004	1,387	3,973	7,928	40,363	141,791	141,204	69,141
SFO-SMF	5	6	1,235	3,173	2,999	1,494	778	1,004	37,206	141,220	142,896	62,208
PSP-SFO	913	910	927	956	963	501	124,513	122,794	126,264	132,490	126,691	69,392
SFO-PSP	908	911	925	956	968	521	122,874	122,900	126,052	132,606	127,748	72,196
LAX-MRY	1,780	2,232	2,553	4,422	4,375	2,034	60,520	75,988	79,534	140,080	141,236	64,192
MRY-LAX	1,766	2,216	2,536	4,417	4,352	2,033	60,192	75,344	78,956	140,100	140,401	64,166
SBP-LAX	2,387	2,360	3,029	3,774	3,567	1,946	81,158	80,240	94,714	120,616	115,624	64,308
LAX-SBP	2,403	2,347	3,020	3,783	3,563	1,946	81,702	79,798	94,368	120,990	115,497	64,406
SBA-SFO	1,526	1,383	701	2,559	2,732	1,387	192,494	173,826	28,170	104,450	102,695	58,710
SFO-SBA	1,574	1,392	699	2,591	2,744	1,388	196,078	174,950	28,090	105,484	115,170	49,740
SFO-ACV	0	0	748	2,626	2,708	1,293	0	0	22,440	82,530	86,970	45,290
ACV-SFO	0	0	754	2,630	2,696	1,294	0	0	22,620	82,620	86,515	43,800
ONT-LAX	49	27	902	2,840	2,835	1,395	9,133	2,286	29,730	93,579	92,075	48,962
LAX-ONT	12	7	900	2,780	2,808	1,398	1,454	629	28,249	86,681	90,210	47,556
MRY-SFO	290	1	761	2,907	2,773	1,362	48,600	134	23,024	100,130	103,465	43,160

Table 3.7 Air Transportation Supply Estimates Based on T-100 Segment Data (continued)

	Departures						Available Seats					
Segment	2000	2001	2002	2003	2004	2005 (Jan-Jun)	2000	2001	2002	2003	2004	2005 (Jan-Jun)
SFO-MRY	292	0	764	2,918	2,763	1,362	48,964	0	22,920	100,720	113,360	56,580
SFO-FAT	0	1	657	2,461	2,479	1,244	0	125	27,950	85,764	85,267	39,060
FAT-SFO	0	0	661	2,509	2,491	1,246	0	0	28,566	88,068	82,637	39,160
SFO-RDD	0	0	586	2,210	2,123	891	0	0	17,580	66,300	65,450	26,730
RDD-SFO	0	0	581	2,202	2,119	889	0	0	17,430	66,060	65,335	26,670
SNA-LAX	34	86	742	2,444	2,108	1,035	4,306	10,828	26,118	86,364	65,960	31,148
LAX-SNA	39	93	747	2,387	2,113	1,046	5,060	11,696	26,536	78,478	66,506	32,104
LAX-SMX	0	0	516	2,087	2,100	1,046	0	0	15,480	62,610	64,714	31,380
SMX-LAX	0	0	517	2,096	2,101	1,054	0	0	15,450	62,610	64,585	31,350
SFO-SBP	0	0	399	1,761	1,694	730	0	0	11,970	52,830	52,160	21,900
SBP-SFO	0	0	402	1,774	1,694	727	0	0	12,060	53,220	52,160	21,810
BFL-LAX	1,600	1,551	514	1,913	1,995	1,021	54,400	52,734	15,440	57,364	61,634	30,720
LAX-BFL	1,614	1,561	510	1,911	1,996	1,021	54,876	53,074	15,300	57,334	61,774	30,620
CLD-LAX	0	0	509	2,096	2,088	1,013	0	0	15,270	62,880	64,355	30,390
LAX-CLD	0	0	513	2,095	2,092	1,011	0	0	15,360	62,850	64,480	30,330
OXR-LAX	0	0	425	1,703	1,712	850	0	0	12,750	51,090	52,785	25,500
LAX-OXR	0	0	424	1,706	1,716	849	0	0	12,720	51,180	52,905	25,470
SFO-MOD	0	0	328	1,304	1,337	671	0	0	9,840	39,120	41,190	20,130
MOD-SFO	0	0	211	1,302	1,341	670	0	0	6,330	39,060	41,275	20,100
SFO-CIC	0	0	314	1,084	1,061	519	0	0	9,420	32,520	32,725	15,570
CIC-SFO	0	0	313	1,082	1,059	516	0	0	9,390	32,460	32,660	15,480

Table 3.7 Air Transportation Supply Estimates Based on T-100 Segment Data (continued)

	Departures						Available Seats					
Segment	**2000**	**2001**	**2002**	**2003**	**2004**	**2005 (Jan-Jun)**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005 (Jan-Jun)**
SMF-PSP	0	0	171	178	262	176	0	0	11,950	12,460	18,340	12,584
PSP-SMF	0	1	174	181	261	175	0	138	12,179	12,670	18,270	12,514
BFL-SFO	0	0	231	803	741	363	0	0	6,930	24,060	22,950	10,890
SFO-BFL	0	0	233	803	751	366	0	0	6,990	24,110	23,265	10,980
SJC-PSP	166	119	77	144	176	7	21,630	15,950	10,451	19,750	24,322	968
PSP-SJC	166	120	78	132	168	8	21,612	16,090	10,600	18,366	23,272	1,108
SBA-SJC	1	2	321	1,259	1,263	605	134	250	9,630	37,790	39,127	18,150
SJC-SBA	2	0	321	1,255	1,257	605	250	0	9,630	37,678	38,805	18,164
IYK-LAX	0	0	255	1,045	1,023	496	0	0	7,650	31,350	31,535	14,880
LAX-IYK	0	0	255	1,046	1,028	499	0	0	7,650	31,380	31,690	14,970
ACV-RDD	702	611	504	358	356	246	25,974	22,673	20,727	24,433	23,567	17,457
RDD-ACV	341	331	336	364	359	240	12,617	12,247	14,424	24,500	22,278	16,930
ACV-SMF	0	0	167	690	656	309	0	0	4,800	19,380	18,710	8,984
SMF-ACV	0	0	116	739	735	339	0	0	3,090	19,410	18,855	9,030
All	**273,371**	**265,804**	**272,363**	**373,659**	**377,187**	**184,748**	**31,029,186**	**29,195,077**	**26,424,399**	**28,419,863**	**29,243,260**	**14,478,896**

Table 3.8 Air Transportation Demand Estimates Based on T-100 Segment Data

	Passengers						Load Factor					
Segment	2000	2001	2002	2003	2004	2005 (Jan-Jun)	2000	2001	2002	2003	2004	2005 (Jan-Jun)
LAX-OAK	1,039,522	951,998	780,160	807,366	801,090	399,254	68%	66%	68%	70%	68%	69%
OAK-LAX	1,044,709	950,870	786,311	794,199	805,207	397,058	68%	66%	69%	69%	68%	68%
LAX-SFO	1,269,020	951,601	858,469	749,176	796,609	399,605	70%	62%	67%	66%	68%	69%
SFO-LAX	1,263,175	943,209	830,630	734,226	768,207	383,726	70%	61%	63%	62%	64%	67%
SAN-OAK	417,195	504,395	558,541	557,375	586,303	299,577	81%	77%	80%	80%	79%	74%
OAK-SAN	399,714	494,625	546,944	548,923	579,254	293,407	78%	75%	80%	78%	77%	72%
LAX-SJC	884,629	742,978	548,484	529,039	578,426	288,740	64%	55%	55%	62%	65%	66%
SJC-LAX	873,366	729,498	543,264	529,935	575,581	291,766	64%	55%	55%	61%	65%	66%
BUR-OAK	489,383	465,186	483,699	489,031	491,641	246,157	72%	71%	77%	78%	75%	76%
OAK-BUR	476,883	464,987	476,672	485,189	494,245	251,270	72%	70%	75%	75%	75%	77%
SAN-SJC	514,352	489,886	486,901	433,669	478,246	235,313	74%	72%	72%	78%	78%	78%
SJC-SAN	481,290	466,966	486,839	427,369	475,120	229,700	70%	69%	72%	76%	78%	77%
SAN-SMF	393,947	401,449	418,142	410,002	449,218	234,566	76%	73%	77%	71%	73%	72%
SMF-SAN	382,452	388,257	414,767	405,841	434,675	228,114	74%	71%	75%	72%	70%	70%
SNA-OAK	423,856	410,141	441,945	441,343	445,330	221,485	81%	77%	75%	76%	73%	72%
OAK-SNA	416,217	403,099	433,447	430,459	436,345	220,411	80%	75%	74%	76%	71%	72%
SMF-LAX	519,369	475,120	353,190	389,601	439,902	240,158	76%	75%	73%	69%	74%	75%
LAX-SMF	527,147	481,042	342,798	383,202	422,280	237,686	78%	76%	71%	69%	72%	73%
ONT-OAK	380,872	403,601	410,492	423,535	421,930	200,568	69%	65%	70%	72%	70%	67%
OAK-ONT	383,163	394,970	393,045	384,882	392,954	198,577	64%	60%	62%	63%	63%	66%
SMF-ONT	375,227	387,529	387,995	352,260	369,637	190,523	76%	69%	67%	65%	68%	68%
ONT-SMF	361,850	373,488	380,921	345,071	360,279	188,657	73%	66%	65%	64%	66%	68%

Table 3.8 Air Transportation Demand Estimates Based on T-100 Segment Data (continued)

	Passengers						Load Factor					
Segment	2000	2001	2002	2003	2004	2005 (Jan-Jun)	2000	2001	2002	2003	2004	2005 (Jan-Jun)
SAN-LAX	369,200	291,589	242,206	366,443	363,839	175,388	58%	57%	66%	72%	72%	73%
LAX-SAN	361,216	271,804	219,441	343,613	347,712	163,559	56%	53%	61%	69%	65%	67%
SNA-SJC	471,676	399,006	377,994	340,244	343,286	178,435	65%	61%	59%	69%	69%	70%
SJC-SNA	468,067	395,583	380,831	340,966	337,336	170,246	65%	61%	59%	70%	69%	73%
SAN-SFO	684,750	435,751	313,219	284,741	318,645	167,048	76%	74%	66%	70%	72%	71%
SFO-SAN	678,622	437,131	311,126	282,837	310,122	154,247	76%	74%	66%	69%	69%	70%
SMF-BUR	329,219	313,191	315,099	307,723	312,277	156,881	73%	70%	69%	64%	65%	68%
BUR-SMF	316,751	301,364	310,344	299,417	314,635	168,910	70%	68%	68%	63%	65%	73%
BUR-SJC	256,995	231,423	234,093	232,442	261,024	134,715	70%	61%	59%	60%	64%	65%
SJC-BUR	264,694	225,468	237,307	228,190	251,996	132,111	72%	61%	60%	59%	63%	64%
SMF-SNA	107,370	97,600	174,375	204,416	242,056	124,016	54%	48%	66%	75%	73%	75%
SNA-SMF	109,124	97,162	173,012	204,594	240,602	124,197	55%	49%	66%	75%	72%	75%
LGB-OAK	0	0	83,728	275,528	239,997	130,569	0%	0%	63%	76%	79%	82%
OAK-LGB	0	0	84,508	271,570	236,004	127,004	0%	0%	64%	75%	78%	80%
SJC-ONT	233,549	228,829	224,927	216,358	218,730	114,648	71%	56%	56%	56%	56%	55%
ONT-SJC	227,106	220,816	220,897	202,156	214,824	125,800	69%	54%	56%	52%	55%	60%
SNA-SFO	336,271	272,666	213,953	197,659	220,807	105,751	61%	46%	47%	52%	55%	69%
SFO-SNA	334,669	263,659	206,694	185,718	204,765	96,830	61%	46%	46%	48%	51%	60%
BUR-SFO	297,804	229,094	167,496	134,025	131,948	61,802	62%	56%	59%	57%	64%	64%
SFO-BUR	303,426	228,887	164,965	132,121	129,954	57,781	63%	56%	58%	57%	64%	64%
LAX-FAT	64,724	62,182	75,966	122,506	123,652	61,652	60%	56%	66%	60%	61%	60%
FAT-LAX	60,468	58,679	76,819	119,671	120,123	61,237	56%	54%	67%	59%	60%	61%

Table 3.8 Air Transportation Demand Estimates Based on T-100 Segment Data (continued)

	Passengers						Load Factor					
Segment	2000	2001	2002	2003	2004	2005 (Jan-Jun)	2000	2001	2002	2003	2004	2005 (Jan-Jun)
LAX-SBA	102,409	74,252	98,413	119,899	119,711	54,850	44%	50%	60%	56%	53%	58%
SBA-LAX	101,761	74,098	92,270	119,346	119,813	57,763	43%	51%	57%	56%	53%	54%
LAX-PSP	103,115	78,275	75,751	109,661	111,681	39,446	49%	53%	68%	62%	66%	69%
PSP-LAX	95,503	75,011	71,922	108,876	112,108	40,547	45%	51%	65%	62%	69%	71%
SMF-SFO	2,617	4,450	28,986	104,935	107,349	54,469	66%	56%	72%	74%	76%	79%
SFO-SMF	289	590	27,463	105,838	108,566	49,650	37%	59%	74%	75%	76%	80%
PSP-SFO	76,375	78,282	85,914	88,406	95,878	54,993	61%	64%	68%	67%	76%	79%
SFO-PSP	76,482	80,580	86,441	87,359	87,531	49,631	62%	66%	69%	66%	69%	69%
LAX-MRY	32,173	38,730	51,888	90,143	91,139	41,893	53%	51%	65%	64%	65%	65%
MRY-LAX	31,581	37,536	51,659	87,659	89,273	41,019	52%	50%	65%	63%	64%	64%
SBP-LAX	43,990	44,619	61,343	77,944	77,524	42,432	54%	56%	65%	65%	67%	66%
LAX-SBP	43,207	43,307	60,378	75,050	73,616	40,467	53%	54%	64%	62%	64%	63%
SBA-SFO	104,631	86,187	19,365	72,107	75,900	36,855	54%	50%	69%	69%	74%	63%
SFO-SBA	99,372	82,562	19,056	70,021	74,210	34,933	51%	47%	68%	66%	64%	70%
SFO-ACV	0	0	15,949	64,453	69,981	33,044	0%	0%	71%	78%	80%	73%
ACV-SFO	0	0	16,290	63,195	69,623	33,131	0%	0%	72%	76%	80%	76%
ONT-LAX	6,345	1,823	19,466	68,914	66,454	33,331	69%	80%	65%	74%	72%	68%
LAX-ONT	537	178	16,232	57,856	58,444	29,187	37%	28%	57%	67%	65%	61%
MRY-SFO	12,390	29	13,049	60,361	60,720	29,266	25%	22%	57%	60%	59%	68%
SFO-MRY	9,579	0	12,982	58,783	59,055	28,827	20%	0%	57%	58%	52%	51%
SFO-FAT	0	81	12,842	48,360	51,297	26,097	0%	65%	46%	56%	60%	67%
FAT-SFO	0	0	12,752	48,242	50,779	24,925	0%	0%	45%	55%	61%	64%

Table 3.8 Air Transportation Demand Estimates Based on T-100 Segment Data (continued)

	Passengers						Load Factor					
Segment	2000	2001	2002	2003	2004	2005 (Jan-Jun)	2000	2001	2002	2003	2004	2005 (Jan-Jun)
SFO-RDD	0	0	10,756	40,519	43,093	18,941	0%	0%	61%	61%	66%	71%
RDD-SFO	0	0	10,252	39,860	42,613	19,069	0%	0%	59%	60%	65%	71%
SNA-LAX	895	1,459	14,272	50,543	43,586	20,440	21%	13%	55%	59%	66%	66%
LAX-SNA	1,146	2,030	12,007	40,515	37,893	18,838	23%	17%	45%	52%	57%	59%
LAX-SMX	0	0	8,518	33,854	37,500	18,280	0%	0%	55%	54%	58%	58%
SMX-LAX	0	0	8,458	32,729	36,340	17,653	0%	0%	55%	52%	56%	56%
SFO-SBP	0	0	7,464	34,438	35,222	15,982	0%	0%	62%	65%	68%	73%
SBP-SFO	0	0	7,399	33,760	34,549	16,521	0%	0%	61%	63%	66%	76%
BFL-LAX	29,195	26,539	8,345	28,306	34,223	16,698	54%	50%	54%	49%	56%	54%
LAX-BFL	28,895	25,921	8,992	28,920	33,374	15,791	53%	49%	59%	50%	54%	52%
CLD-LAX	0	0	8,840	34,941	33,250	13,799	0%	0%	58%	56%	52%	45%
LAX-CLD	0	0	8,440	33,007	31,368	12,776	0%	0%	55%	53%	49%	42%
OXR-LAX	0	0	5,582	21,968	23,824	11,737	0%	0%	44%	43%	45%	46%
LAX-OXR	0	0	5,326	20,313	22,732	10,494	0%	0%	42%	40%	43%	41%
SFO-MOD	0	0	3,655	14,294	18,583	7,956	0%	0%	37%	37%	45%	40%
MOD-SFO	0	0	2,245	14,578	18,979	8,305	0%	0%	35%	37%	46%	41%
SFO-CIC	0	0	4,780	16,141	17,988	8,092	0%	0%	51%	50%	55%	52%
CIC-SFO	0	0	4,938	16,203	17,527	8,337	0%	0%	53%	50%	54%	54%
SMF-PSP	0	0	6,052	7,437	14,865	11,086	0%	0%	51%	60%	81%	88%
PSP-SMF	0	30	5,950	7,557	14,234	10,192	0%	22%	49%	60%	78%	81%
BFL-SFO	0	0	4,256	13,399	14,268	7,656	0%	0%	61%	56%	62%	70%
SFO-BFL	0	0	3,851	12,672	14,546	7,478	0%	0%	55%	53%	63%	68%

Table 3.8 Air Transportation Demand Estimates Based on T-100 Segment Data (continued)

	Passengers						Load Factor					
Segment	**2000**	**2001**	**2002**	**2003**	**2004**	**2005 (Jan-Jun)**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005 (Jan-Jun)**
SJC-PSP	12,982	10,032	6,847	12,362	16,027	371	60%	63%	66%	63%	66%	38%
PSP-SJC	12,770	11,023	7,004	8,958	10,378	556	59%	69%	66%	49%	45%	50%
SBA-SJC	45	206	3,569	14,021	13,370	6,894	34%	82%	37%	37%	34%	38%
SJC-SBA	119	0	3,476	12,702	11,704	6,516	48%	0%	36%	34%	30%	36%
IYK-LAX	0	0	2,991	11,397	12,677	6,484	0%	0%	39%	36%	40%	44%
LAX-IYK	0	0	2,854	10,589	12,178	6,186	0%	0%	37%	34%	38%	41%
ACV-RDD	13,579	14,002	12,393	11,903	11,938	9,349	52%	62%	60%	49%	51%	54%
RDD-ACV	6,506	7,184	7,753	10,434	10,328	8,586	52%	59%	54%	43%	46%	51%
ACV-SMF	0	0	2,944	12,567	12,006	6,184	0%	0%	61%	65%	64%	69%
SMF-ACV	0	0	1,440	10,445	10,184	5,368	0%	0%	47%	54%	54%	59%
All	**21,001,923**	**18,491,546**	**17,370,661**	**18,899,327**	**19,740,723**	**9,949,738**	**68%**	**63%**	**66%**	**67%**	**68%**	**69%**

Table 3.9 Monthly Variation in Air Travel Between California Airports in 2004 Based on T-100 Segment Data

Segment	January Passengers	Monthly Variation Indexed to January Passengers												Annual Passengers
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
LAX-OAK	57,146	100.0	104.8	123.8	126.5	128.9	122.4	120.2	125.8	106.0	117.6	115.3	110.6	**801,090**
OAK-LAX	55,462	100.0	109.9	127.8	131.6	131.3	128.2	124.7	128.6	110.8	122.0	117.6	119.3	**805,207**
LAX-SFO	60,816	100.0	94.1	104.6	109.0	106.8	114.0	118.9	123.1	102.8	115.7	108.0	113.0	**796,609**
SFO-LAX	54,739	100.0	100.2	109.4	110.5	111.6	122.5	125.0	123.4	115.8	127.2	121.2	136.6	**768,207**
SAN-OAK	39,853	100.0	105.3	121.5	130.3	125.5	127.2	131.6	137.9	118.6	127.9	127.9	117.4	**586,303**
OAK-SAN	39,108	100.0	105.2	120.7	131.1	126.1	127.8	135.3	137.3	119.4	128.9	128.9	120.5	**579,254**
LAX-SJC	39,062	100.0	105.3	131.1	131.8	132.4	134.2	133.5	136.9	112.7	126.4	119.2	117.4	**578,426**
SJC-LAX	36,259	100.0	115.5	138.2	145.2	140.9	140.2	140.5	142.1	123.9	137.7	129.8	133.4	**575,581**
BUR-OAK	37,206	100.0	102.4	113.0	116.3	115.3	111.4	109.8	116.4	105.6	116.8	105.3	109.1	**491,641**
OAK-BUR	35,628	100.0	108.9	118.4	123.2	120.3	117.0	112.7	121.1	109.3	121.6	116.2	118.5	**494,245**
SAN-SJC	32,437	100.0	108.5	124.4	132.0	124.9	127.5	133.1	139.6	119.3	127.7	121.1	116.1	**478,246**
SJC-SAN	32,660	100.0	108.3	124.8	133.9	125.4	126.6	132.0	135.7	115.3	121.0	117.8	114.0	**475,120**
SAN-SMF	28,220	100.0	111.2	134.6	146.6	145.6	144.0	145.4	149.2	120.3	130.8	135.6	128.6	**449,218**
SMF-SAN	27,285	100.0	110.4	130.3	148.1	141.0	146.6	148.2	144.9	123.6	131.9	137.5	130.5	**434,675**
SNA-OAK	33,306	100.0	102.3	112.5	110.8	113.8	116.6	116.4	116.6	103.7	116.2	114.1	114.1	**445,330**
OAK-SNA	32,077	100.0	104.5	114.3	114.2	112.4	118.3	119.9	118.0	105.3	118.0	117.3	118.1	**436,345**
SMF-LAX	28,564	100.0	109.1	135.7	144.0	142.1	138.3	129.7	126.2	116.8	131.2	135.5	131.5	**439,902**
LAX-SMF	27,112	100.0	109.7	139.3	144.4	146.6	138.7	128.8	132.3	115.5	133.1	138.6	130.5	**422,280**
ONT-OAK	30,522	100.0	107.6	127.5	129.0	122.6	120.2	116.8	119.6	108.3	118.7	110.0	102.1	**421,930**

Table 3.9 Monthly Variation in Air Travel Between California Airports in 2004 Based on T-100 Segment Data (continued)

Segment	January Passengers	Monthly Variation Indexed to January Passengers												Annual Passengers
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
OAK-ONT	26,779	100.0	112.7	133.0	139.2	128.9	123.1	119.0	127.2	114.7	127.7	120.1	121.9	**392,954**
SMF-ONT	23,274	100.0	112.8	146.5	161.1	152.1	144.5	130.5	135.5	120.0	131.0	129.3	124.9	**369,637**
ONT-SMF	23,041	100.0	112.9	149.8	157.3	152.8	141.8	125.3	132.6	114.5	124.4	128.4	123.7	**360,279**
SAN-LAX	28,651	100.0	99.4	109.2	116.8	113.9	104.6	111.6	108.3	97.5	107.0	99.7	101.8	**363,839**
LAX-SAN	28,635	100.0	93.1	98.9	113.7	110.2	100.1	107.5	106.5	91.5	105.3	92.2	95.3	**347,712**
SNA-SJC	24,600	100.0	104.7	114.7	114.8	115.6	121.9	122.0	129.0	110.1	122.1	123.0	117.4	**343,286**
SJC-SNA	24,053	100.0	105.6	113.8	120.4	115.5	121.2	122.2	125.6	110.6	124.0	122.7	120.9	**337,336**
SAN-SFO	22,519	100.0	98.1	118.9	117.8	110.3	118.7	127.9	133.9	111.8	124.0	121.3	132.2	**318,645**
SFO-SAN	22,332	100.0	96.4	113.9	117.7	102.9	115.8	132.3	134.6	108.9	119.8	117.0	129.4	**310,122**
SMF-BUR	21,544	100.0	108.1	134.2	140.7	136.8	133.7	117.7	123.1	108.6	119.8	114.0	112.8	**312,277**
BUR-SMF	21,844	100.0	106.8	133.1	139.9	134.5	129.5	116.9	120.6	103.6	116.4	120.0	119.0	**314,635**
BUR-SJC	17,351	100.0	102.1	126.0	138.3	134.7	134.9	131.9	138.4	119.8	132.3	125.4	120.6	**261,024**
SJC-BUR	15,753	100.0	113.6	139.0	142.2	138.2	140.0	136.5	149.6	129.2	138.2	139.4	133.6	**251,996**
SMF-SNA	16,313	100.0	113.4	121.4	132.5	130.5	133.8	131.3	131.2	118.1	124.4	123.7	123.4	**242,056**
SNA-SMF	16,179	100.0	113.1	122.8	134.1	133.6	133.0	129.2	132.5	115.3	125.5	124.1	123.8	**240,602**
LGB-OAK	20,485	100.0	92.3	100.5	110.0	98.1	99.6	98.8	105.4	93.4	94.0	90.3	89.3	**239,997**
OAK-LGB	19,123	100.0	98.5	105.4	115.9	105.0	105.0	103.9	109.5	98.2	100.5	95.1	97.0	**236,004**
SJC-ONT	14,152	100.0	112.9	141.7	153.7	140.4	132.4	124.4	132.9	119.0	129.9	128.5	129.7	**218,730**
ONT-SJC	13,807	100.0	113.6	142.8	143.5	135.7	130.9	121.3	134.2	116.8	129.7	150.7	136.7	**214,824**
SNA-SFO	15,105	100.0	105.3	116.6	118.9	120.8	125.5	135.6	146.8	122.7	129.9	126.1	113.5	**220,807**

Table 3.9 Monthly Variation in Air Travel Between California Airports in 2004 Based on T-100 Segment Data (continued)

Segment	January Passengers	Monthly Variation Indexed to January Passengers												Annual Passengers
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
SFO-SNA	12,671	100.0	117.2	130.8	131.7	131.3	140.0	150.1	155.1	136.2	142.5	146.4	134.6	**204,765**
BUR-SFO	9,857	100.0	105.0	110.9	114.1	116.6	119.7	112.9	121.8	107.1	113.6	107.4	109.5	**131,948**
SFO-BUR	9,363	100.0	111.5	112.7	118.8	121.4	125.9	116.2	132.8	113.6	113.8	111.8	109.5	**129,954**
LAX-FAT	9,059	100.0	103.9	113.8	116.3	117.6	120.4	123.1	121.7	112.2	121.0	112.4	102.6	**123,652**
FAT-LAX	8,838	100.0	102.6	110.1	115.3	113.6	124.4	122.2	104.0	116.3	121.6	115.2	113.7	**120,123**
LAX-SBA	9,324	100.0	98.9	102.1	107.4	103.9	108.8	110.2	120.5	105.2	107.8	101.0	118.1	**119,711**
SBA-LAX	8,322	100.0	111.8	119.5	113.3	116.9	120.8	123.5	138.3	120.1	121.8	117.9	135.8	**119,813**
LAX-PSP	9,864	100.0	101.7	129.8	100.9	87.7	91.0	89.3	89.0	89.0	98.2	79.9	75.8	**111,681**
PSP-LAX	9,561	100.0	105.7	137.0	110.6	104.2	101.1	92.5	87.5	86.1	97.0	80.6	70.3	**112,108**
SMF-SFO	7,559	100.0	100.5	115.6	122.4	133.4	132.6	132.1	112.9	112.5	116.7	118.9	122.6	**107,349**
SFO-SMF	7,932	100.0	96.5	114.8	125.9	129.7	123.9	123.2	117.7	101.8	110.9	110.3	114.0	**108,566**
PSP-SFO	8,078	100.0	102.9	123.0	117.0	109.9	93.5	88.3	87.9	72.9	93.0	105.3	93.2	**95,878**
SFO-PSP	6,440	100.0	118.1	138.0	126.4	105.4	103.4	105.4	111.1	93.3	109.9	127.3	120.9	**87,531**
LAX-MRY	6,392	100.0	111.8	124.7	124.8	132.2	119.6	125.3	120.1	120.1	132.7	117.0	97.4	**91,139**
MRY-LAX	5,613	100.0	128.2	133.3	135.2	144.1	145.6	135.6	135.4	133.9	147.1	135.8	116.4	**89,273**
SBP-LAX	5,453	100.0	103.5	112.0	119.1	120.6	120.2	126.0	132.5	123.2	126.3	118.8	119.5	**77,524**
LAX-SBP	5,406	100.0	95.5	108.3	110.7	115.7	111.7	123.2	130.8	116.3	122.4	114.5	112.6	**73,616**
SBA-SFO	4,895	100.0	109.4	141.5	130.7	139.1	136.5	141.7	146.0	126.2	133.4	125.0	121.1	**75,900**
SFO-SBA	5,117	100.0	101.3	118.0	123.2	120.4	121.7	144.1	139.4	121.2	130.9	119.0	111.2	**74,210**
SFO-ACV	4,808	100.0	104.0	117.5	126.0	139.5	140.6	134.2	133.5	114.2	114.5	117.4	114.2	**69,981**

Table 3.9 Monthly Variation in Air Travel Between California Airports in 2004 Based on T-100 Segment Data (continued)

Segment	January Passengers	Monthly Variation Indexed to January Passengers												Annual Passengers
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
ACV-SFO	4,645	100.0	104.0	121.1	133.1	140.5	143.2	132.6	137.9	120.7	120.3	121.9	123.6	**69,623**
ONT-LAX	5,128	100.0	97.5	109.0	107.5	107.7	118.7	115.6	116.4	97.8	106.7	99.4	119.5	**66,454**
LAX-ONT	4,325	100.0	96.3	114.3	117.9	121.3	119.9	128.6	130.6	105.0	106.4	100.2	110.8	**58,444**
MRY-SFO	3,840	100.0	116.9	136.5	135.3	151.3	134.9	131.2	145.7	144.0	142.0	135.4	108.0	**60,720**
SFO-MRY	3,975	100.0	110.4	129.0	113.4	135.8	134.2	125.4	137.4	136.2	139.5	120.6	103.7	**59,055**
SFO-FAT	3,445	100.0	99.3	116.4	123.1	121.7	141.4	149.3	143.7	130.1	129.5	114.3	120.2	**51,297**
FAT-SFO	3,557	100.0	101.0	112.0	125.5	125.5	137.6	148.4	122.4	122.3	113.9	109.8	109.3	**50,779**
SFO-RDD	2,853	100.0	102.6	120.6	123.1	132.0	139.7	135.8	140.2	125.1	132.3	124.6	134.4	**43,093**
RDD-SFO	3,100	100.0	92.8	110.9	109.8	119.4	132.6	119.9	120.7	119.1	117.5	115.8	116.1	**42,613**
SNA-LAX	3,734	100.0	89.9	99.8	98.6	98.0	100.5	102.7	99.8	85.4	93.8	108.3	90.4	**43,586**
LAX-SNA	2,976	100.0	96.5	111.0	102.2	101.5	110.3	108.1	124.4	102.1	112.9	103.6	100.8	**37,893**
LAX-SMX	2,941	100.0	93.9	100.7	103.0	112.0	112.5	112.3	118.5	99.8	115.7	106.1	100.5	**37,500**
SMX-LAX	2,715	100.0	98.0	105.9	112.0	120.7	117.2	117.2	121.6	107.6	114.1	113.3	110.8	**36,340**
SFO-SBP	2,573	100.0	100.6	109.2	129.8	137.7	131.0	134.3	120.2	101.7	109.5	98.1	96.9	**35,222**
SBP-SFO	2,383	100.0	101.0	118.9	144.4	153.8	138.6	137.0	129.0	111.5	107.9	105.1	102.6	**34,549**
BFL-LAX	2,592	100.0	100.2	105.2	113.0	116.3	119.3	119.7	120.1	104.2	112.1	111.7	98.4	**34,223**
LAX-BFL	2,475	100.0	100.7	107.5	116.8	130.1	113.7	120.2	125.5	106.4	115.7	114.1	97.7	**33,374**
CLD-LAX	2,790	100.0	107.2	108.4	108.1	96.7	108.2	100.4	97.3	91.7	91.8	91.2	90.8	**33,250**
LAX-CLD	2,723	100.0	102.2	101.5	104.7	93.8	98.3	102.2	94.3	84.6	92.2	88.4	89.6	**31,368**
OXR-LAX	1,793	100.0	105.9	114.5	104.0	117.8	123.3	117.6	127.8	112.0	104.2	100.9	100.6	**23,824**

Table 3.9 Monthly Variation in Air Travel Between California Airports in 2004 Based on T-100 Segment Data (continued)

Segment	January Passengers	Monthly Variation Indexed to January Passengers												Annual Passengers
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
LAX-OXR	1,759	100.0	100.4	107.4	104.0	111.8	109.2	116.3	140.1	107.3	107.4	93.9	94.5	**22,732**
SFO-MOD	1,167	100.0	102.2	113.7	130.4	133.9	148.4	162.4	171.3	137.3	144.9	125.3	122.5	**18,583**
MOD-SFO	1,233	100.0	98.5	114.4	127.3	140.6	146.9	160.0	157.4	130.8	135.9	116.1	111.1	**18,979**
SFO-CIC	1,398	100.0	89.7	103.9	106.7	109.0	113.4	112.4	126.3	99.4	115.7	116.2	93.9	**17,988**
CIC-SFO	1,228	100.0	103.6	111.3	116.6	127.3	131.2	129.1	122.6	116.5	131.3	124.2	113.6	**17,527**
SMF-PSP	1,514	100.0	105.9	112.5	111.3	117.8	18.0	–	–	57.7	127.3	121.4	109.8	**14,865**
PSP-SMF	1,537	100.0	107.8	120.0	113.0	119.5	19.5	–	–	44.0	100.2	99.0	103.1	**14,234**
BFL-SFO	950	100.0	113.1	131.8	121.5	122.6	132.9	151.1	135.1	128.0	134.5	118.7	112.6	**14,268**
SFO-BFL	821	100.0	141.5	162.4	122.9	127.2	160.7	165.4	175.4	146.2	157.9	155.9	156.4	**14,546**
SJC-PSP	3,137	100.0	94.4	100.3	68.1	1.2	–	–	–	–	0.5	68.4	78.0	**16,027**
PSP-SJC	1,056	100.0	171.9	205.1	175.2	–	–	–	–	–	2.0	172.3	156.3	**10,378**
SBA-SJC	1,007	100.0	92.9	122.3	109.6	98.0	114.6	115.9	125.2	103.5	126.3	131.8	87.5	**13,370**
SJC-SBA	929	100.0	88.1	111.2	104.4	91.5	104.0	103.3	106.7	106.4	123.3	129.5	91.6	**11,704**
IYK-LAX	873	100.0	110.0	122.7	126.9	132.2	127.8	123.4	138.3	111.7	118.6	127.9	112.7	**12,677**
LAX-IYK	853	100.0	102.2	121.7	135.9	119.7	125.6	121.1	131.9	115.6	120.6	117.1	116.3	**12,178**
ACV-RDD	778	100.0	87.3	119.8	110.2	126.0	134.8	135.7	152.4	132.3	138.3	137.4	160.3	**11,938**
RDD-ACV	653	100.0	85.8	102.8	109.2	123.0	147.5	154.1	171.5	141.3	138.6	168.9	139.1	**10,328**
ACV-SMF	871	100.0	101.0	123.0	107.3	118.6	122.6	117.1	128.5	128.2	108.0	111.6	112.4	**12,006**
SMF-ACV	780	100.0	95.4	126.0	102.9	108.2	111.7	100.5	124.7	117.2	98.7	111.9	108.3	**10,184**
All	**1,390,357**	**100.0**	**105.4**	**121.9**	**126.5**	**123.7**	**123.8**	**123.3**	**126.7**	**111.1**	**121.6**	**118.6**	**117.3**	**19,740,723**

O&D Market Data

The U.S. DOT origin-destination ten-percent sample database includes actual ticket information for 10 percent of the tickets collected by large air carriers. Despite the limitations noted above, the O&D database is probably the most accurate single source for defining intrastate air markets. We are investigating approaches for combining T-100 data and the O&D Coupon database to improve the O&D Market estimates, but unless specific improvements can be identified, the O&D Market data are likely to provide the most reasonable estimate of true origin-destination passenger activity.

Table 3.10 shows the annual estimated air passenger trips between California airports. Figures 3.2 through 3.12 graphically show the passenger volumes from the large California airports to the other airports.

Additional Data Available from the O&D Market Database

In addition to passenger estimates, the origin-destination dataset provides us with detailed itinerary and fare information that can be used to understand individual markets. At the national level, the Bureau of Transportation Statistics analyzes the fare data available in the 10 percent sample, and reports the changes over time in the Air Transportation Index (ATPI). Table 3.11 summarizes the ATPI for California airports over the past several quarters.

The O&D market database can provide similar measures on an origin-destination basis for key California travel markets, as needed. Because the 10 percent sample provides information on actual tickets, both the average fare and the variation in fares for a given market are available.

To better understand the variations in fares and to relate the reported fare levels to airline pricing policies, CS staff has tracked web-published air fares for the past several months for several of the key origin-destination pairs. Fares for hypothetical trips with different advanced purchase times and day-of-week patterns were tracked.

CS tracked airline rates over the period March 30 to October 13, 2005. Rates were obtained for total of 11 time periods within these 7 months and analyzed statistically. The analysis focused on in-state flights with departures from SFO, LAX, OAK, SJC, and SMF. A total of 5 round trip origin/destination (OD) pairs were analyzed. Flight cost data were obtained from the following Internet web sites: orbitz.com and travelocity.com, jetblue.com, and southwest.com.

As expected, the analysis revealed a great deal of variation in ticket prices that depended upon the how far in advance the tickets were purchased, with those purchased 14 days in advance cost about half as much as those purchased less than one week ahead.

Table 3.10 Bidirectional Air Passenger Volumes for Intrastate Origin-Destination Pairs Based on the O&D Market Data

Airport Pair	2000	2001	2002	2003	2004	2005 (Jan-Jun)
LAX-OAK	1,604,150	1,502,810	1,265,570	1,261,300	1,245,830	584,490
OAK-SAN	752,840	940,820	1,046,700	1,028,460	1,062,380	503,420
BUR-OAK	893,820	865,950	919,550	924,950	917,550	450,720
SAN-SMF	741,090	758,510	801,030	757,180	794,460	401,000
OAK-SNA	794,070	767,680	819,580	803,510	794,630	384,710
SAN-SJC	880,280	843,010	851,970	744,830	814,340	374,780
ONT-SMF	698,930	740,780	713,960	622,620	636,130	342,560
LAX-SJC	1,185,640	1,011,360	777,840	637,710	694,200	339,330
LAX-SFO	1,422,650	943,650	804,560	647,120	700,770	338,960
OAK-ONT	635,260	683,930	705,490	712,490	679,350	330,010
SJC-SNA	896,980	746,480	712,740	632,680	633,240	316,860
LAX-SMF	840,640	790,670	599,520	525,400	585,520	309,120
BUR-SMF	603,450	594,630	602,730	564,610	572,110	286,710
SMF-SNA	215,270	197,840	368,780	439,160	497,860	242,630
LGB-OAK	0	0	151,080	487,640	452,710	241,820
BUR-SJC	490,110	436,120	448,120	422,950	448,310	224,760
ONT-SJC	376,860	380,270	378,240	329,030	351,890	178,920
SAN-SFO	1,038,520	557,480	329,690	266,170	296,320	161,710
SFO-SNA	589,980	436,050	292,980	233,180	263,460	109,850
PSP-SFO	95,390	116,010	112,960	123,960	127,160	73,780
BUR-SFO	450,630	313,010	199,550	120,250	111,210	30,340
LAX-SAN	127,760	73,470	36,010	32,220	35,210	16,760
ACV-LAX	11,570	13,190	14,050	12,310	12,200	14,030
PSP-SMF	8,730	7,030	10,520	10,760	20,580	13,170
FAT-LAX	25,700	22,820	21,000	19,520	22,370	9,230
LAX-MRY	15,320	20,730	16,480	15,980	20,440	7,630
LAX-RDD	14,300	13,590	8,710	6,200	5,010	7,560
LAX-SBP	11,710	11,360	11,950	9,910	9,930	5,530
LAX-SBA	23,760	12,600	13,500	10,470	9,240	4,640

Table 3.10 Bidirectional Air Passenger Volumes for Intrastate Origin-Destination Pairs Based on the O&D Market Data (continued)

Airport Pair	2000	2001	2002	2003	2004	2005 (Jan-Jun)
FAT-SAN	19,940	13,470	8,400	7,230	7,730	3,770
ONT-SFO	201,120	127,860	13,790	10,330	11,320	3,760
ACV-SAN	15,130	14,420	11,290	10,980	10,510	3,480
MRY-SAN	12,680	11,720	8,250	7,850	8,730	3,180
ACV-SNA	9,850	9,080	8,330	7,460	8,630	2,020
PSP-SJC	26,450	23,120	13,230	14,760	19,150	1,760
LAX-PSP	29,160	18,920	10,380	7,770	7,390	1,630
SAN-SBP	6,820	4,000	3,080	2,290	3,020	1,490
RDD-SAN	7,430	8,430	6,370	4,420	5,150	1,280
SAN-SBA	9,170	4,580	3,450	2,840	2,680	1,090
RDD-SNA	3,230	3,300	4,450	4,670	3,990	960
SBA-SMF	14,840	13,400	3,010	1,550	2,870	930
LAX-MOD	2,760	2,680	1,840	1,850	2,970	770
CEC-LAX	1,550	1,640	1,930	2,070	2,450	930
ACV-BUR	9,090	8,380	7,270	4,660	4,510	880
CLD-SFO	10,180	10,190	5,190	4,530	3,740	770
CIC-LAX	6,260	5,170	3,370	2,690	2,530	750
ACV-ONT	9,170	7,880	2,750	2,440	2,450	710
SBA-SFO	111,880	89,390	2,650	2,460	2,890	690
ACV-RDD	3,120	3,200	1,950	1,430	1,130	640
CIC-SNA	900	1,320	1,040	1,230	1,780	550
ACV-SFO	1,260	1,310	1,150	980	1,310	440
OAK-PSP	11,480	7,680	3,460	2,310	2,570	530
CEC-SAN	2,300	1,720	1,900	1,220	1,410	530
MOD-SAN	3,780	2,740	1,710	1,650	2,590	500
MOD-SNA	2,060	1,880	850	1,120	1,880	480
OAK-SBA	3,690	2,840	3,150	2,780	3,500	490
BFL-SFO	730	900	960	860	1,110	470
BUR-RDD	5,930	5,300	4,570	2,870	2,410	480

Table 3.10 Bidirectional Air Passenger Volumes for Intrastate Origin-Destination Pairs Based on the O&D Market Data (continued)

Airport Pair	2000	2001	2002	2003	2004	2005 (Jan-Jun)
FAT-SNA	470	450	1,040	1,930	1,680	450
SFO-SMF	1,530	1,110	910	1,050	1,010	380
LAX-ONT	610	560	490	540	730	240
IYK-LAX	590	630	380	300	540	240
MRY-SNA	1,410	840	1,710	2,470	2,110	380
CIC-SAN	3,930	3,070	2,050	1,460	1,630	400
SMF-SMX	1,920	1,190	320	220	980	400
LAX-SNA	1,460	1,250	700	420	410	210
MRY-PSP	2,460	1,310	780	1,080	960	330
CEC-SNA	1,710	980	920	1,520	1,480	330
SBA-SJC	1,510	1,240	1,350	600	430	310
OXR-SMF	3,090	1,860	720	760	840	280
OXR-SFO	1,650	1,290	1,090	1,280	1,550	280
LAX-OXR	930	630	530	410	520	150
LGB-SMF	70	70	90	130	150	150
IPL-SFO	2,840	1,720	1,440	980	870	230
BFL-SMF	1,300	1,580	380	170	830	210
ONT-RDD	8,130	6,920	1,480	1,060	790	190
OAK-OXR	2,480	1,610	220	350	710	200
BFL-OAK	1,030	1,260	220	420	510	160
SBP-SFO	730	410	540	560	440	160
SBP-SMF	1,430	1,660	240	90	350	210
ACV-PSP	180	400	740	1,130	1,050	200
CEC-ONT	1,510	800	710	360	440	180
BUR-CIC	2,470	2,560	1,010	650	380	170
BUR-MRY	1,020	920	1,150	1,690	1,500	170
MRY-SFO	3,860	480	640	540	440	140
BUR-MOD	1,060	610	350	410	620	150
FAT-PSP	1,660	970	730	510	470	160

Table 3.10 Bidirectional Air Passenger Volumes for Intrastate Origin-Destination Pairs Based on the O&D Market Data (continued)

Airport Pair	2000	2001	2002	2003	2004	2005 (Jan-Jun)
SFO-SMX	350	420	530	350	560	160
CLD-LAX	610	340	130	160	190	120
SBP-SJC	240	70	70	70	970	100
FAT-SFO	1,990	1,180	710	1,210	880	140
IYK-SFO	550	450	360	330	380	140
BFL-LAX	4,080	3,930	320	240	260	130
LAX-SMX	1,040	660	270	360	180	130
PSP-SBP	460	430	430	340	350	160
MOD-SFO	290	250	130	150	150	70
BUR-FAT	990	540	320	310	330	60
OAK-SMX	430	170	130	150	260	120
CEC-PSP	30	0	140	140	250	110
OAK-SBP	190	200	100	90	30	50
PSP-SBA	700	410	260	450	400	90
ACV-SMF	40	20	20	20	50	80
ACV-CLD	290	220	150	220	260	70
CLD-OAK	5,830	4,260	820	1,080	720	50
FAT-ONT	450	230	40	10	40	40
RDD-SFO	1,070	980	860	560	490	60
CEC-SFO	380	280	310	310	210	40
CIC-SFO	310	370	160	90	140	60
CIC-SMX	60	0	0	50	60	60
CLD-SMF	3,710	3,670	1,150	480	750	60
ACV-FAT	20	10	10	0	60	30
ACV-SBA	2,020	1,710	40	40	30	50
BUR-CEC	1,420	890	970	300	50	30
CIC-CLD	90	190	20	70	20	40
FAT-SBA	500	270	180	180	40	40
MOD-PSP	80	160	130	30	90	40

Table 3.10 Bidirectional Air Passenger Volumes for Intrastate Origin-Destination Pairs Based on the O&D Market Data (continued)

Airport Pair	2000	2001	2002	2003	2004	2005 (Jan-Jun)
MRY-SMF	100	0	0	10	20	30
ACV-OAK	0	0	0	0	0	10
BFL-IPL	10	10	0	0	0	10
BFL-RDD	10	20	0	0	20	10
CEC-SBA	260	240	30	30	0	20
CIC-IPL	100	40	20	0	0	10
CIC-PSP	80	120	220	210	140	20
CIC-SBA	1,720	1,330	50	0	10	20
IPL-MRY	10	0	0	0	0	10
IPL-OAK	2,470	2,010	450	60	310	10
IPL-RDD	10	50	90	50	20	20
LGB-SFO	0	0	0	0	20	20
MRY-SBA	380	330	100	60	40	20
PSP-RDD	180	200	320	300	410	10
FAT-RDD	0	0	10	10	10	10
RDD-SBP	10	50	20	10	0	20
RDD-SMX	40	0	20	20	0	20
RDD-SBA	1,450	1,970	100	40	30	10
SBP-SNA	30	10	90	80	130	10
CLD-SJC	6,380	5,550	1,160	290	530	10
CEC-SMF	20	0	20	20	50	10
PSP-VIS	60	70	0	0	0	10
SAN-VIS	1,190	750	10	20	0	10
ACV-BFL	10	30	20	10	90	0
ACV-CEC	20	0	0	0	0	0
ACV-IPL	180	110	170	90	30	0
ACV-IYK	80	0	0	20	10	0
ACV-MOD	10	0	0	0	0	0
ACV-MRY	180	10	0	0	0	0

Table 3.10 Bidirectional Air Passenger Volumes for Intrastate Origin-Destination Pairs Based on the O&D Market Data (continued)

Airport Pair	2000	2001	2002	2003	2004	2005 (Jan-Jun)
ACV-OXR	110	50	110	70	120	0
ACV-SBP	0	10	0	20	20	0
ACV-SJC	0	20	20	0	0	0
ACV-SMX	40	40	0	40	50	0
ACV-VIS	0	10	0	0	0	0
BFL-CEC	0	0	0	100	110	0
BFL-FAT	20	0	0	10	0	0
BFL-MRY	10	0	0	0	0	0
BFL-ONT	10	10	0	0	20	0
BFL-PSP	300	70	0	0	0	0
BFL-SAN	3,100	2,230	20	10	60	0
BFL-SJC	790	930	90	110	160	0
BFL-SNA	0	20	0	0	0	0
BUR-LAX	60	10	0	0	0	0
BUR-SAC	20	0	0	0	0	0
BUR-SAN	40	0	0	0	0	0
BUR-STS	680	230	0	0	0	0
CEC-CLD	30	60	70	40	0	0
CEC-IPL	30	20	70	0	70	0
CEC-IYK	0	10	20	0	20	0
CEC-MRY	30	0	0	0	0	0
CEC-OXR	30	40	20	40	0	0
CEC-SJC	0	20	0	0	10	0
CEC-SMX	20	0	0	40	20	0
CIC-BFL	0	10	0	0	0	0
CIC-IYK	40	40	0	20	40	0
CIC-MRY	30	0	0	0	0	0
CIC-ONT	2,650	1,700	300	130	90	0
CIC-OXR	40	30	60	20	40	0

Table 3.10 Bidirectional Air Passenger Volumes for Intrastate Origin-Destination Pairs Based on the O&D Market Data (continued)

Airport Pair	2000	2001	2002	2003	2004	2005 (Jan-Jun)
CIC-SBP	0	20	0	0	0	0
CLD-FAT	0	0	20	0	10	0
CLD-MOD	70	20	10	80	0	0
CLD-MRY	30	60	10	40	10	0
CLD-OXR	20	0	0	0	0	0
CLD-RDD	180	370	160	140	20	0
CLD-SBA	670	40	200	100	240	0
CLD-SBP	10	0	20	0	10	0
CLD-SMX	10	10	0	0	0	0
CLD-STS	190	10	0	0	0	0
FAT-CEC	0	0	0	10	0	0
FAT-IPL	30	10	10	0	10	0
FAT-LGB	320	0	0	0	0	0
FAT-MRY	20	0	10	10	0	0
FAT-SMF	80	50	10	20	60	0
FAT-VIS	0	0	20	0	10	0
IPL-LAX	520	340	170	40	60	0
IPL-MOD	100	40	40	10	40	0
IPL-SBA	40	40	120	0	20	0
IPL-SBP	10	20	0	0	0	0
IPL-SJC	2,790	1,680	750	200	60	0
IPL-SMF	2,790	2,860	1,320	480	560	0
IYK-MOD	0	0	20	0	0	0
IYK-OAK	250	190	50	140	130	0
IYK-RDD	20	0	0	20	20	0
IYK-SAN	90	40	0	0	0	0
IYK-SJC	260	210	80	60	20	0
IYK-SMF	400	350	140	30	140	0
LAX-MCE	40	70	0	0	0	0

Table 3.10 Bidirectional Air Passenger Volumes for Intrastate Origin-Destination Pairs Based on the O&D Market Data (continued)

Airport Pair	2000	2001	2002	2003	2004	2005 (Jan-Jun)
LAX-STS	2,910	2,380	0	0	0	0
LAX-VIS	260	150	0	40	0	0
LGB-ACV	0	0	0	20	0	0
LGB-RDD	0	0	0	10	10	0
LGB-SJC	0	10	10	0	0	0
LGB-TVL	3,020	0	0	0	0	0
MCE-ONT	0	10	0	0	0	0
MCE-PSP	80	30	0	0	0	0
MCE-SAN	940	330	0	0	0	0
MCE-SNA	10	0	0	0	0	0
MOD-FAT	0	0	0	10	0	0
MOD-ONT	1,670	800	230	110	260	0
MOD-OXR	0	0	0	20	20	0
MOD-RDD	20	0	0	0	0	0
MOD-SBA	290	220	10	0	0	0
MRY-ONT	560	400	0	30	30	0
MRY-RDD	20	0	0	0	20	0
OAK-SFO	10	0	0	0	10	0
OAK-VIS	10	10	0	0	0	0
ONT-SAC	10	0	0	0	0	0
ONT-SAN	440	160	0	30	10	0
ONT-SBA	230	20	120	10	0	0
ONT-SBP	40	40	30	0	0	0
ONT-STS	520	360	0	0	0	0
OXR-PSP	50	0	0	0	0	0
OXR-RDD	190	80	130	30	0	0
OXR-SAN	1,420	860	0	0	0	0
OXR-SJC	1,840	930	260	140	80	0
OXR-STS	20	0	0	0	0	0

Table 3.10 Bidirectional Air Passenger Volumes for Intrastate Origin-Destination Pairs Based on the O&D Market Data (continued)

Airport Pair	2000	2001	2002	2003	2004	2005 (Jan-Jun)
PSP-SCK	0	20	90	60	0	0
PSP-SMX	20	40	0	0	0	0
PSP-SNA	160	20	0	20	0	0
PSP-STS	280	60	0	0	0	0
RDD-SMF	0	10	10	0	10	0
RDD-VIS	70	0	0	0	0	0
SAC-SAN	70	0	0	0	0	0
SAN-PSP	0	10	0	0	0	0
SAN-SCK	0	40	190	200	0	0
SAN-SMX	1,400	1,070	0	10	20	0
SAN-SNA	200	50	0	60	0	0
SAN-STS	4,360	1,640	0	0	0	0
SBA-SNA	540	20	180	50	170	0
SBA-STS	610	140	0	0	0	0
SBP-BUR	0	10	0	0	0	0
SBP-CEC	10	0	0	0	0	0
SBP-MOD	0	0	0	10	0	0
SCK-CLD	0	10	0	20	0	0
SCK-ONT	0	20	50	60	0	0
SNA-SCK	40	280	200	10	0	0
SJC-SFO	410	220	0	10	0	0
STS-SFO	80	30	10	10	20	0
VIS-SFO	20	0	10	20	10	0
FAT-SJC	0	0	10	0	0	0
SMF-SJC	170	70	30	10	0	0
SMX-SJC	0	0	10	0	10	0
OAK-SMF	20	0	10	0	0	0
VIS-SMF	10	10	0	40	10	0
SNA-SMX	330	190	0	10	0	0

Table 3.10 Bidirectional Air Passenger Volumes for Intrastate Origin-Destination Pairs Based on the O&D Market Data (continued)

Airport Pair	2000	2001	2002	2003	2004	2005 (Jan-Jun)
STS-SNA	370	140	10	0	0	0
VIS-SNA	10	0	10	0	0	0
VIS-ONT	10	0	0	0	0	0
All Pairs	**16,126,390**	**14,306,841**	**13,216,772**	**12,559,163**	**12,986,244**	**6,350,710**

Source: U.S. DOT O&D Market Database obtained from Bureau of Transportation Statistics web site, accessed October 2005.

Figure 3.2 Air Passenger Trips From LAX

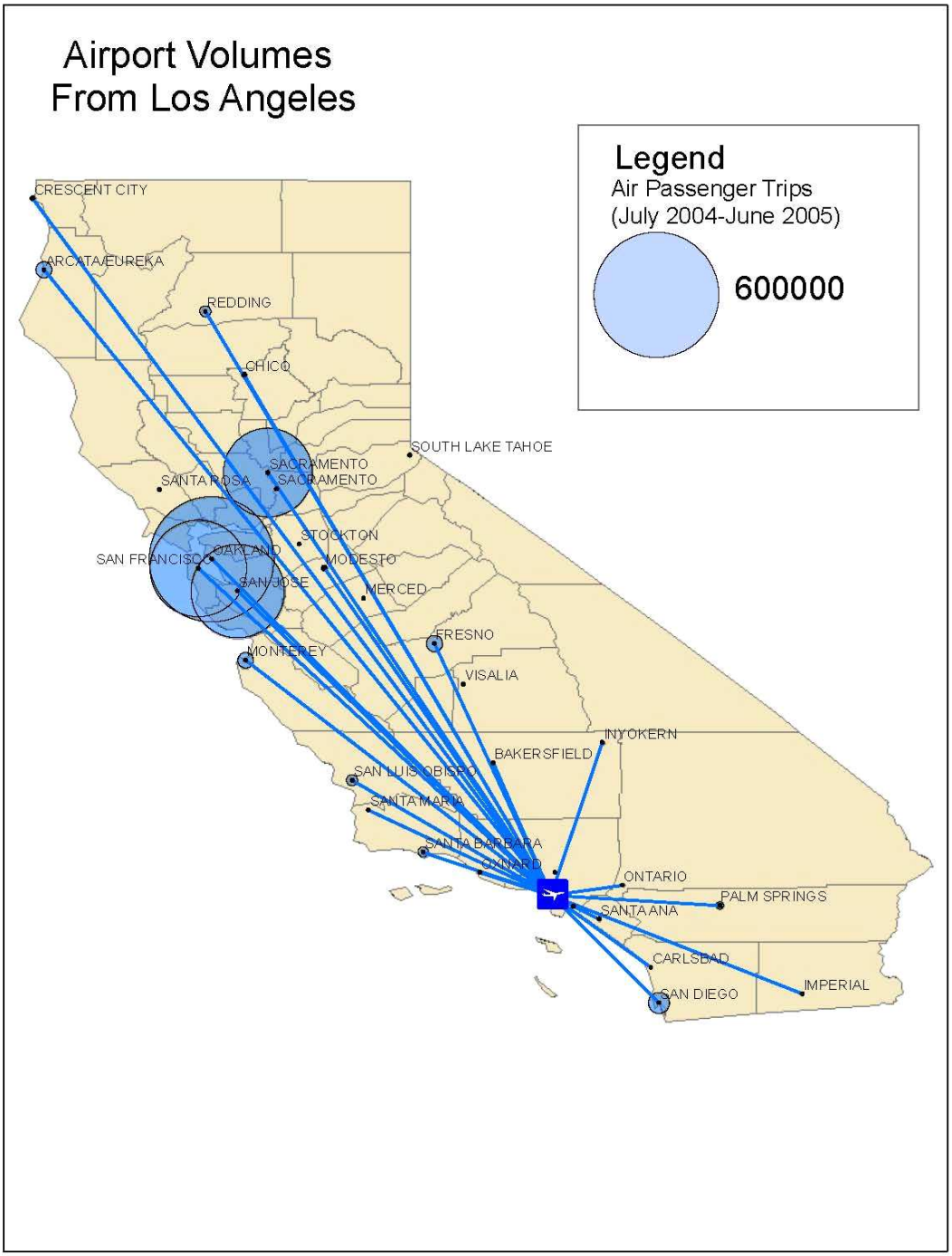


Figure 3.3 Air Passenger Trips from ONT

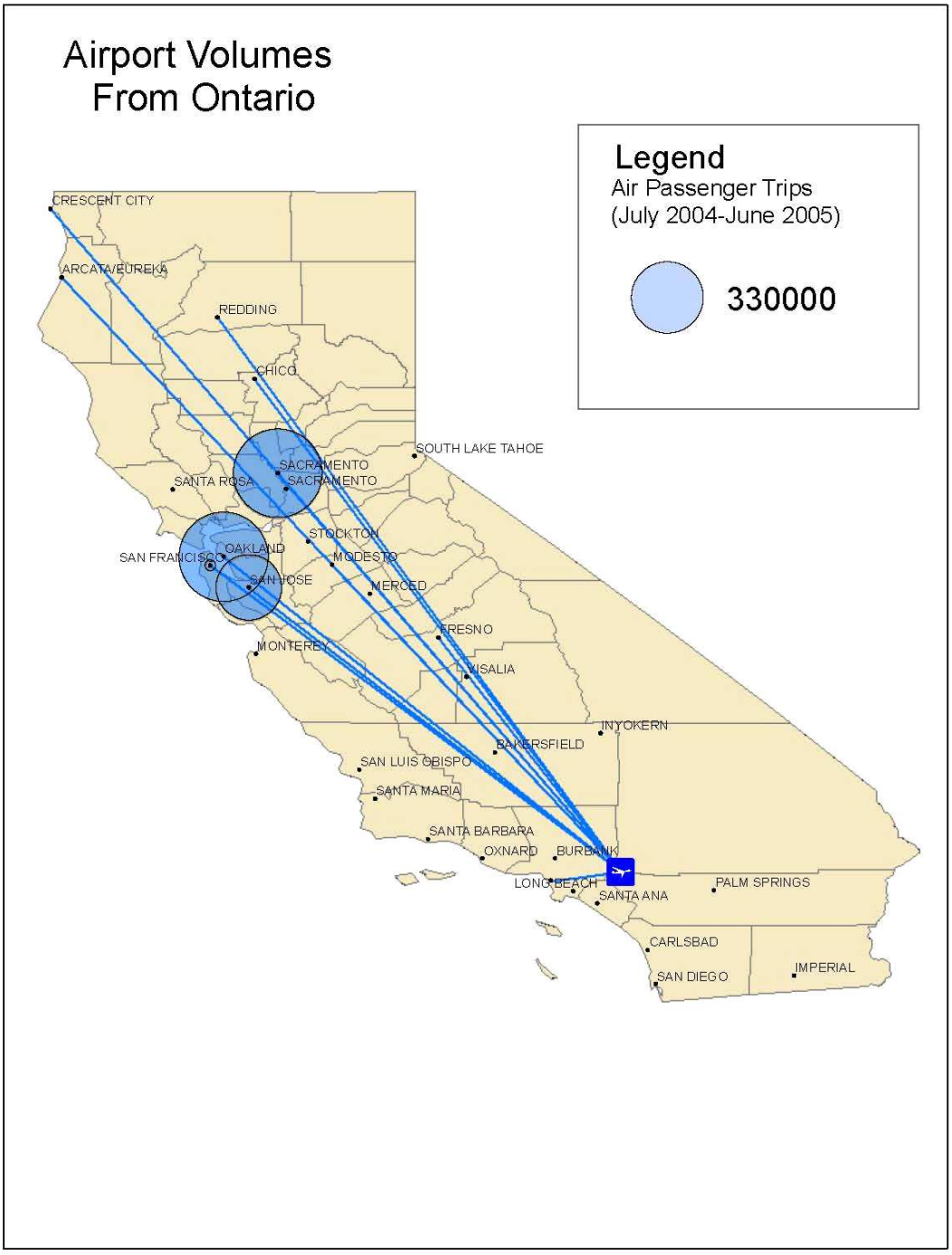


Figure 3.4 Air Passenger Trips from LGB

Figure 3.5 Air Passenger Trips from BUR

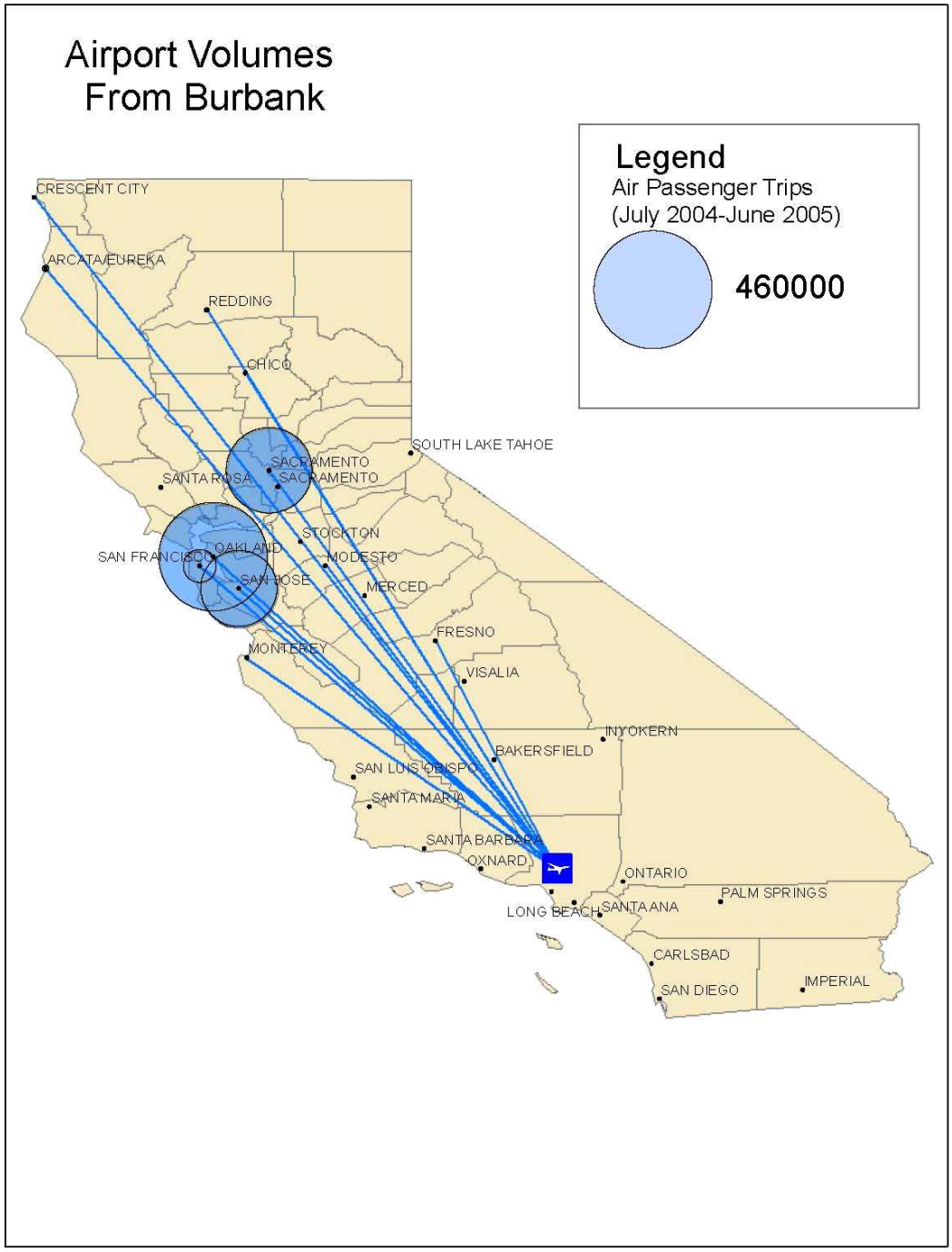


Figure 3.6 Air Passenger Trips from SNA

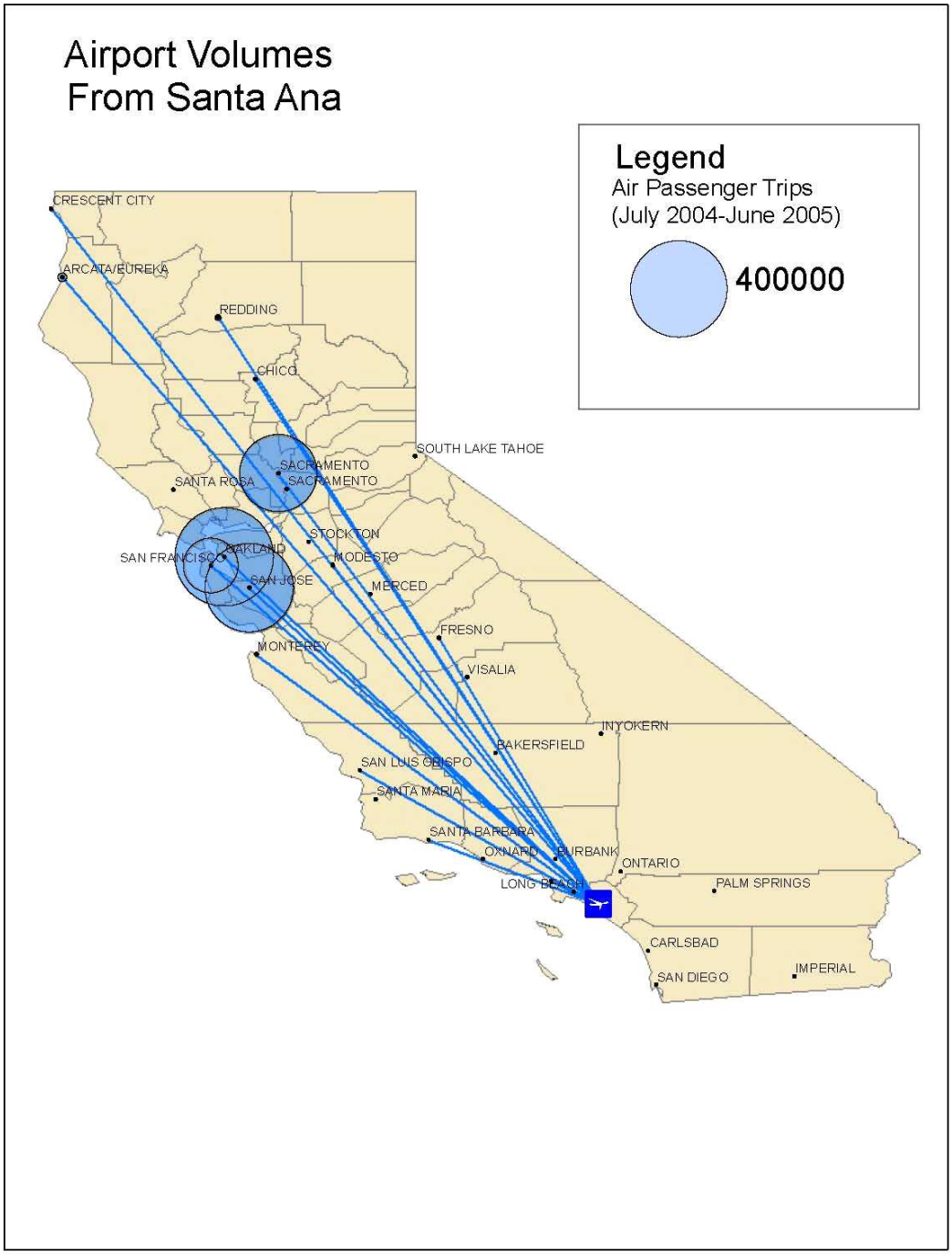


Figure 3.7 Air Passenger Trips from SAN

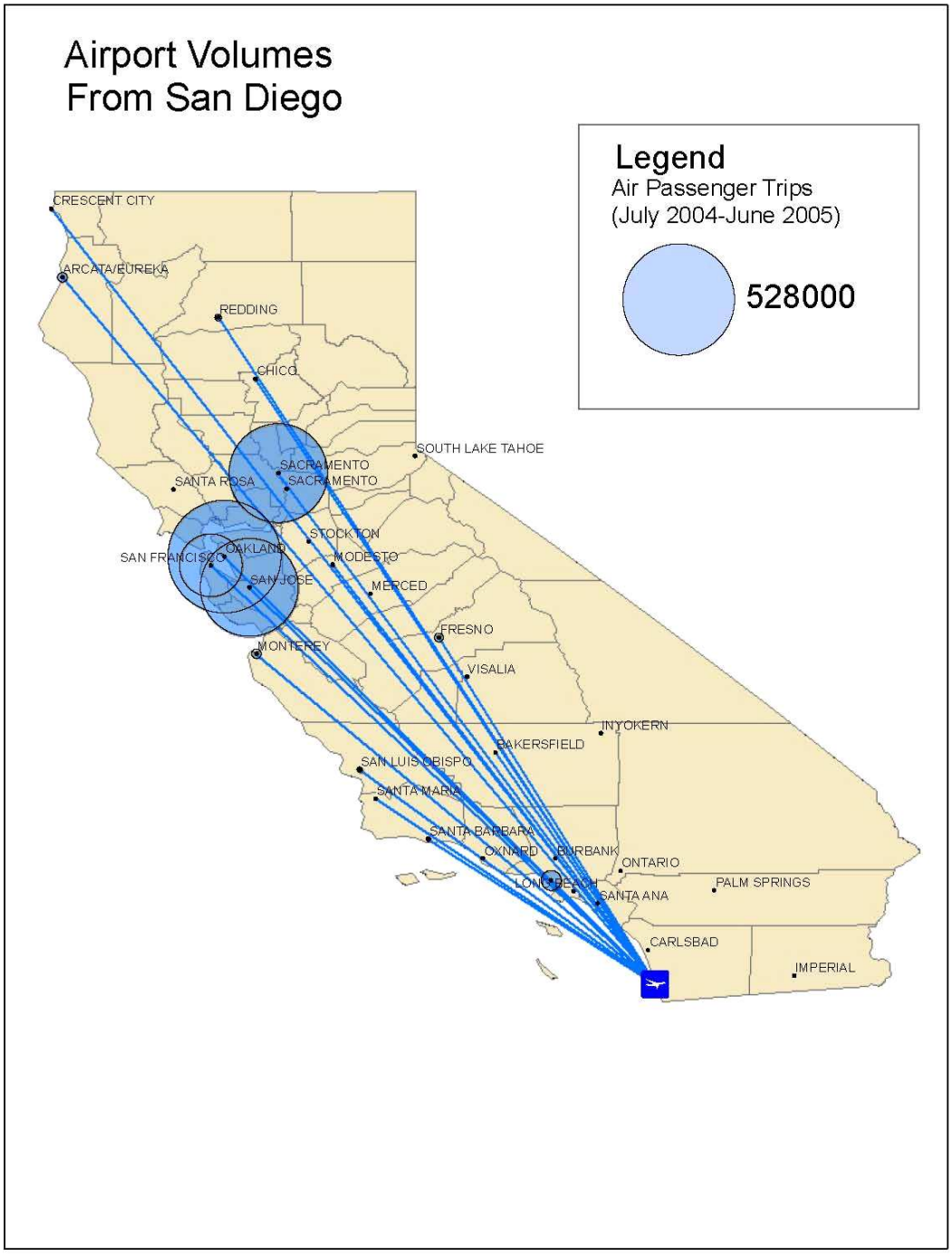


Figure 3.8 Air Passenger Trips from OAK

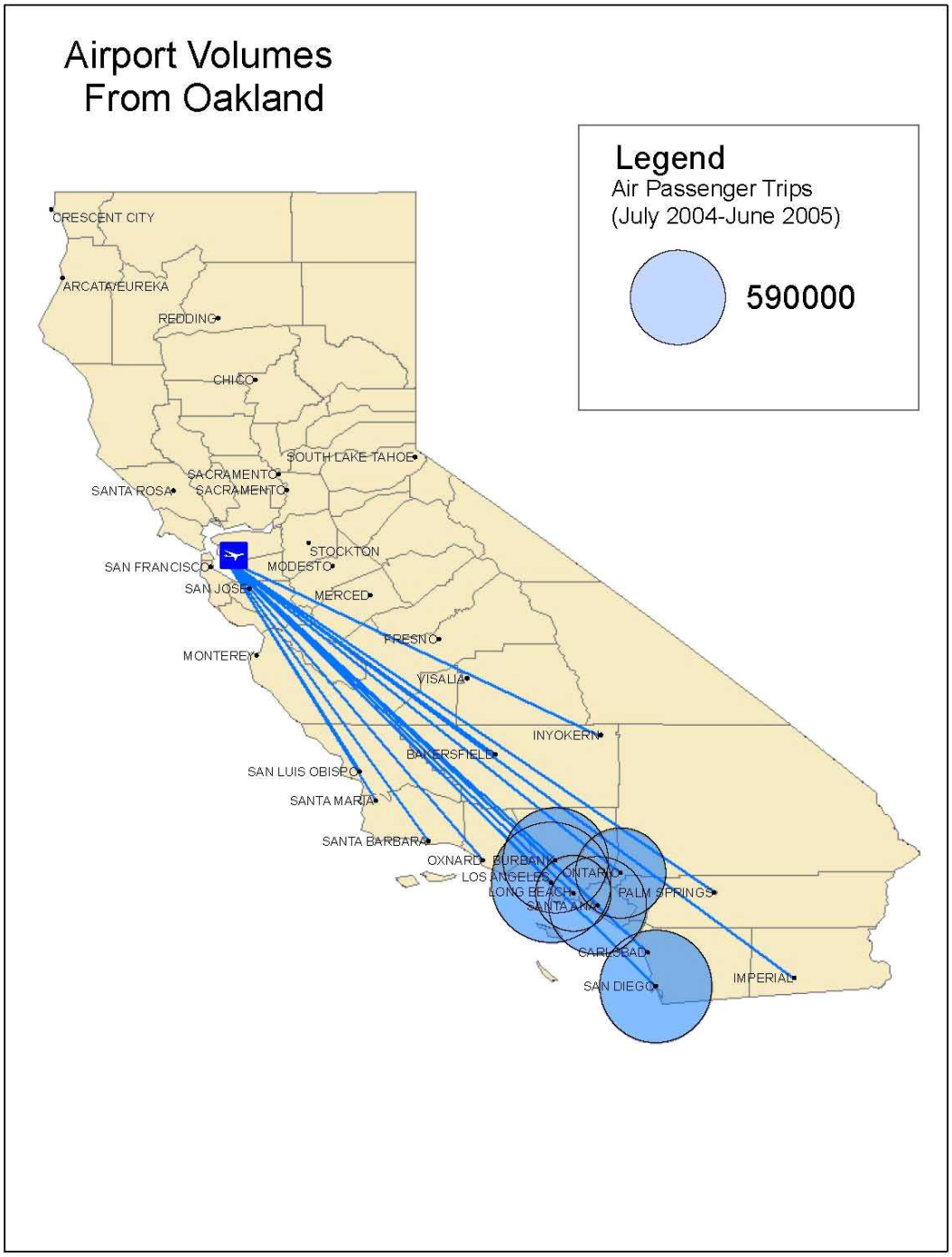


Figure 3.9 Air Passenger Trips from SFO

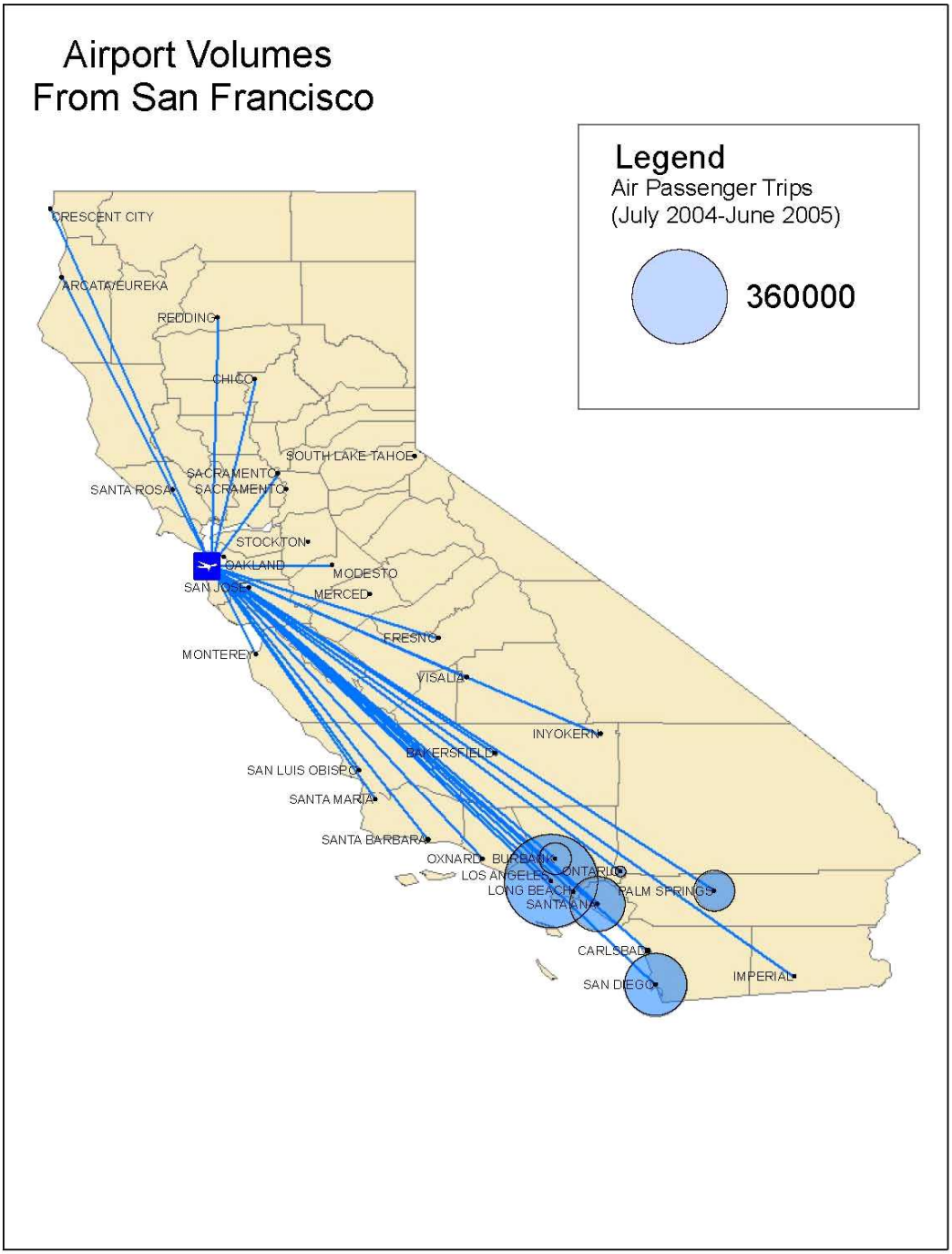


Figure 3.10 Air Passenger Trips from SJC

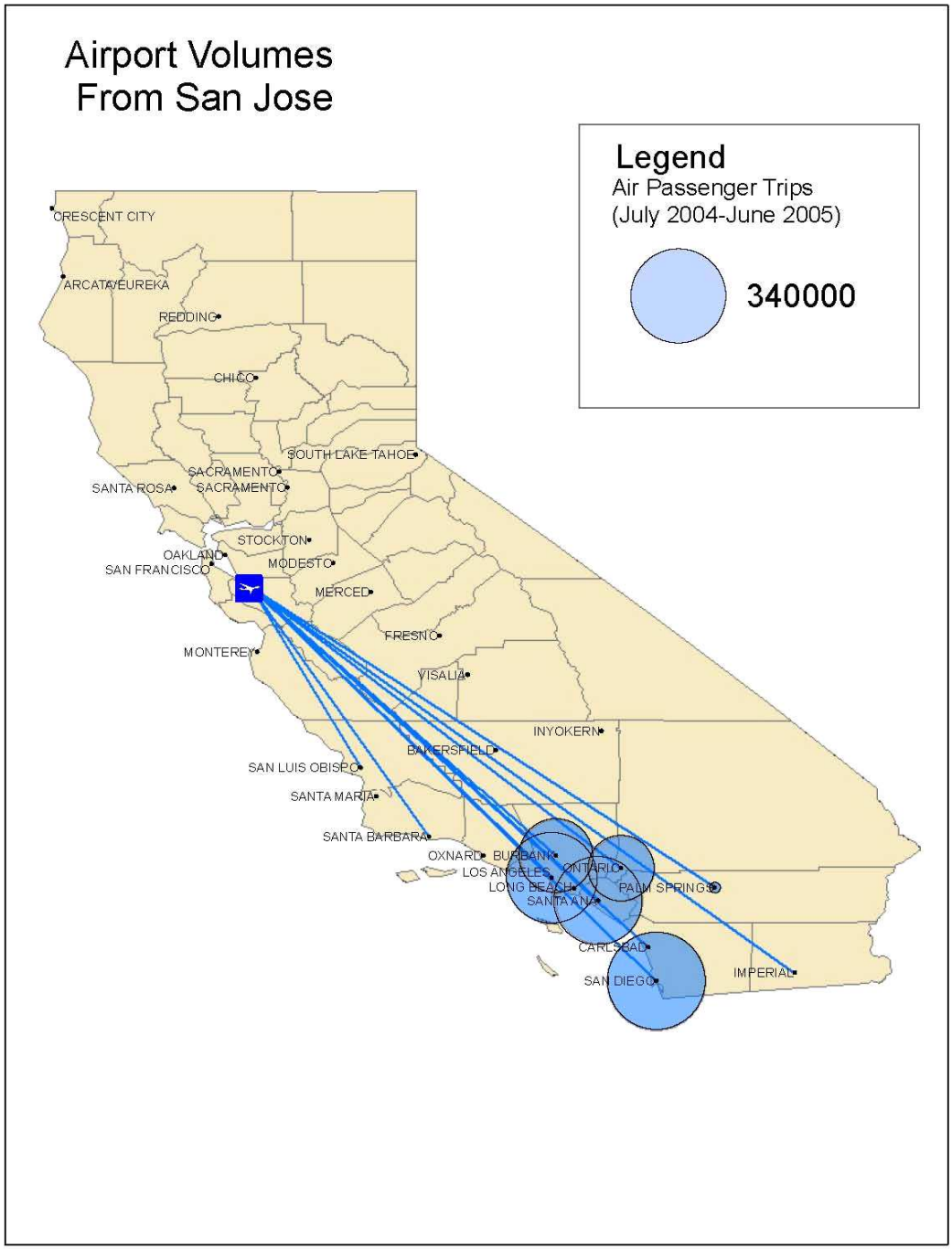


Figure 3.11 Air Passenger Trips from SMF

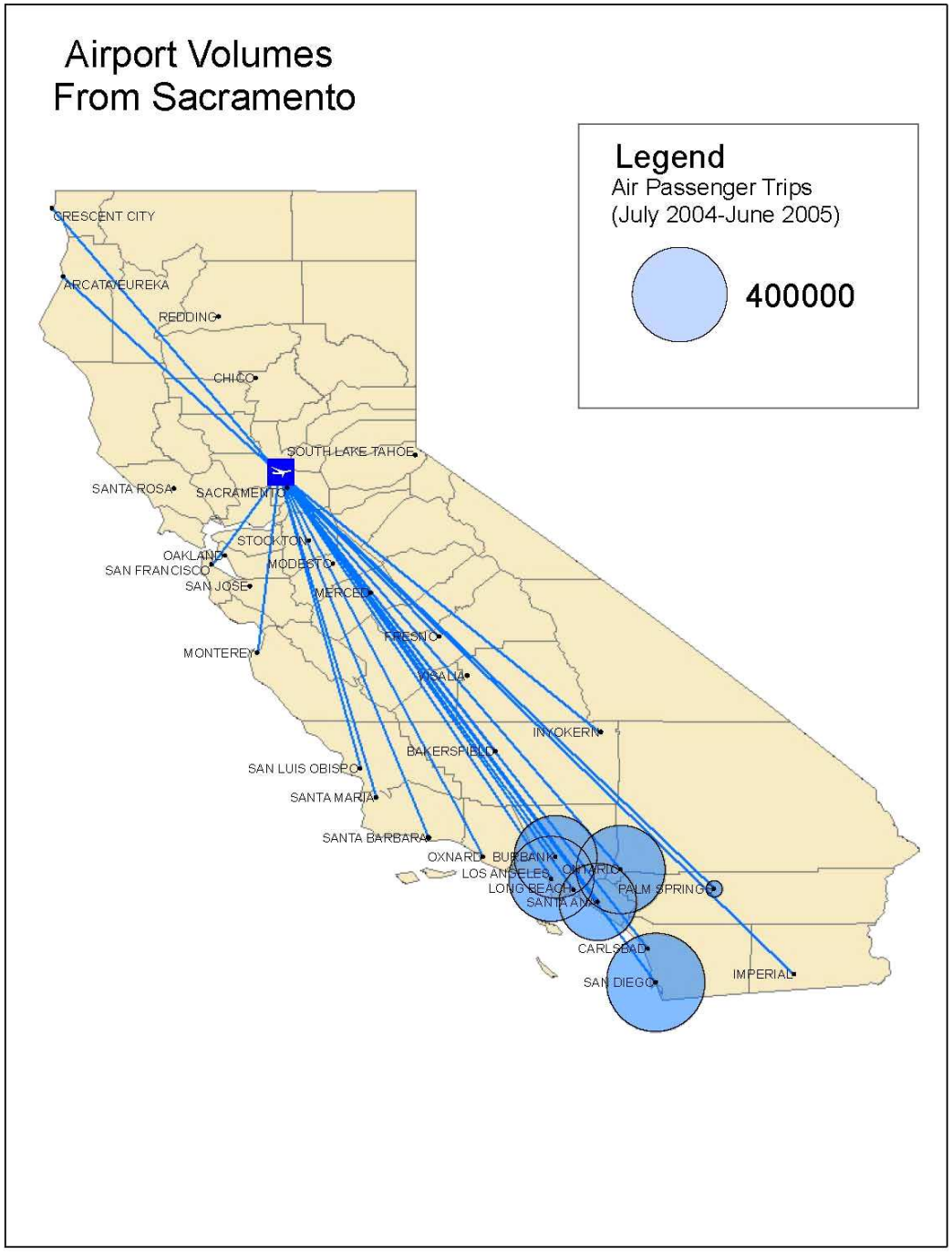


Figure 3.12 Air Passenger Trips from FAT

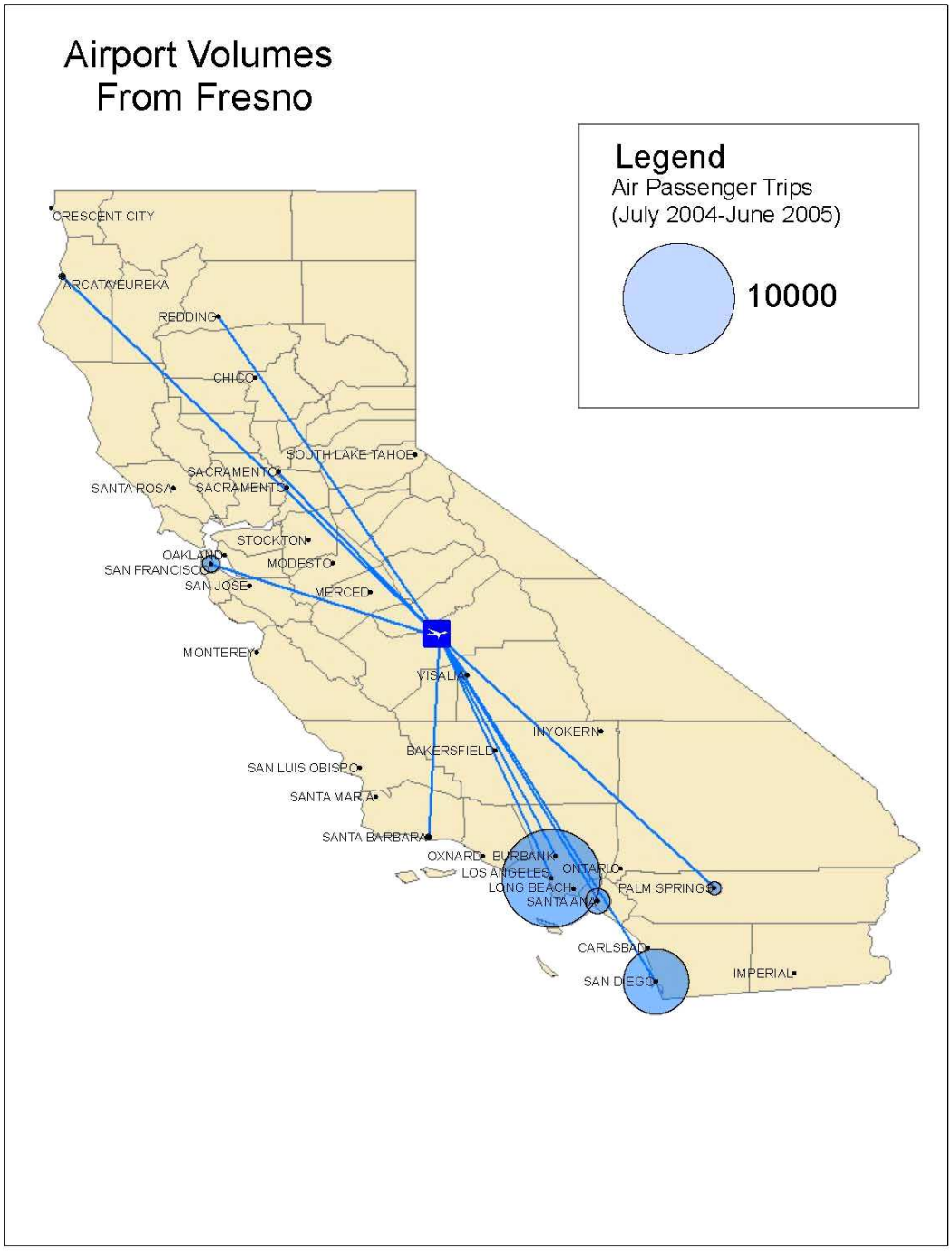


Table 3.11 Air Travel Price Index for California Airports

Date	U.S.-Origin ATPI	BUR	LGB	LAX	OAK	ONT	SMF	SAN	SFO	SJC
1995 Q1	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1995 Q2	101.12	101.4	88.81	100.5	100.8	98.74	99.38	100.9	99.59	100.1
1995 Q3	100.36	101.2	86.69	102.3	100.3	98.53	99.67	101.5	100.5	100.1
1995 Q4	98.96	95.72	59.06	99.94	98.83	95.13	93.37	99.58	99.21	97.28
1996 Q1	98.73	97.13	57.94	98.6	99.51	96.79	93.35	100.2	102.1	98.34
1996 Q2	97.83	104.1	101.0	98.16	101.1	98.29	97.48	98.28	101.6	98.12
1996 Q3	98.36	104.2	97.64	99.29	100.5	97.02	97.13	98.17	102.9	98.12
1996 Q4	99.3	105.1	100.9	98.73	102.1	97.1	96.79	97.69	102.8	94.68
1997 Q1	101.99	108.2	96.96	102.1	107.4	101.6	100.9	102.5	105.7	101.7
1997 Q2	103.49	112.1	102.6	104.3	111.6	103.5	104.8	105.6	107.4	106.2
1997 Q3	102.19	112.1	102.7	104.1	110.0	101.5	104.4	104.9	108.8	102.8
1997 Q4	107.8	112.7	109.3	111.5	113.7	104.1	108.8	108.8	112.1	114.5
1998 Q1	104.55	116.8	107.4	110.0	103.5	107.1	105.4	107.7	104.8	106.4
1998 Q2	100.0	113.2	109.5	104.4	101.5	101.4	99.86	103.5	102.5	98.71
1998 Q3	99.48	113.4	112.7	104.5	103.9	101.0	100.5	102.4	104.3	97.46
1998 Q4	99.09	115.5	116.0	103.9	105.7	102.5	101.5	102.0	102.8	98.21
1999 Q1	102.2	119.7	121.5	106.1	108.6	107.1	103.9	105.0	105.4	103.2
1999 Q2	102.06	121.6	129.5	105.8	110.2	106.7	105.0	106.2	106.3	101.8
1999 Q3	100.44	120.7	135.9	105.7	108.7	103.7	105.7	104.7	106.1	101.6
1999 Q4	101.73	122.0	129.9	107.9	109.2	103.6	105.5	105.4	108.3	103.0
2000 Q1	106.13	126.0	135.2	110.5	113.2	108.8	109.3	110.0	112.1	109.4
2000 Q2	108.18	128.2	140.6	112.8	115.5	110.2	112.0	112.2	116.7	115.0
2000 Q3	108.98	129.1	134.2	115.4	117.4	112.1	114.5	114.8	120.1	115.4
2000 Q4	111.56	129.9	134.8	115.5	119.3	112.6	114.3	114.7	120.4	118.2
2001 Q1	116.94	133.3	142.3	119.0	121.2	116.9	116.8	119.7	126.7	121.8
2001 Q2	111.77	131.0	133.9	113.2	118.0	110.3	112.2	112.9	119.7	111.3
2001 Q3	106.05	126.8	125.2	110.8	115.4	105.2	109.7	108.4	115.0	104.8
2001 Q4	102.86	125.8	122.4	107.0	112.1	103.6	104.6	104.1	117.0	101.9
2002 Q1	108.18	130.5	130.8	113.7	115.2	108.7	108.4	111.6	119.0	107.5
2002 Q2	106.39	133.4	132.8	111.4	115.4	108.1	106.4	110.2	115.8	107.7

Table 3.11 Air Travel Price Index for California Airports (continued)

Date	U.S.-Origin ATPI	BUR	LGB	LAX	OAK	ONT	SMF	SAN	SFO	SJC
2002 Q3	103.39	129.5	131.9	107.8	110.9	104.4	103.0	106.9	111.6	103.3
2002 Q4	104.73	130.4	134.4	109.5	111.1	105.4	104.6	108.2	112.5	103.9
2003 Q1	107.98	131.8	129.7	111.0	110.7	106.8	105.0	112.0	114.9	105.4
2003 Q2	105.79	131.7	127.6	107.1	111.3	105.2	102.9	107.9	111.5	103.3
2003 Q3	105.53	133.0	134.4	109.1	112.8	105.2	104.6	108.9	116.1	103.9
2003 Q4	106.56	136.3	131.5	109.0	113.0	105.2	107.0	110.1	115.8	104.2
2004 Q1	108.59	134.2	124.3	107.1	110.0	104.2	105.2	111.3	114.6	101.6
2004 Q2	106.24	136.4	128.9	106.0	112.8	104.1	107.1	111.3	114.8	102.3
2004 Q3	102.63	137.3	128.3	105.3	114.0	103.0	107.1	110.5	114.4	102.6
2004 Q4	102.24	137.6	126.2	104.1	114.4	102.9	106.6	110.9	114.6	103.0
2005 Q1	103.9	137.0	119.4	105.6	112.7	105.4	105.4	109.9	115.7	103.5
2005 Q2	108.2	145.9	134.6	110.9	120.6	112.3	113.1	114.1	118.6	110.4

Finally, the U.S. DOT tracks flight delays on a monthly basis. Table 3.12 shows the on-time performance levels for California airports in August 2005. Except for a few outliers among the smaller airports, the on-time performance of California airports is relatively uniform, and slightly better than the national average (75.2 percent for arrivals).

Table 3.12 California Airport On-Time Performance – August 2005

Airport Code	City	Airport	Arrivals-Percent On-Time	Departures (Percent On-Time)
LAX	Los Angeles	Los Angeles International	81.2	83.4
SFO	San Francisco	San Francisco International	76.1	82.7
SAN	San Diego	San Diego International	78.7	83.1
OAK	Oakland	Metropolitan Oakland International	80.7	79.0
SJC	San Jose	Norman Y. Mineta San Jose International	81.4	83.2
SMF	Sacramento	Sacramento International	78.2	81.6
SNA	Santa Ana	John Wayne Airport-Orange County	82.0	85.2
ONT	Ontario	Ontario International	76.7	80.9
BUR	Burbank	Bob Hope	77.8	82.0
LGB	Long Beach	Long Beach /Daugherty Field/	84.5	91.0
PSP	Palm Springs	Palm Springs International	80.3	87.6
FAT	Fresno	Fresno Yosemite International	86.2	88.9
SBA	Santa Barbara	Santa Barbara Municipal	87.7	88.6
MRY	Monterey	Monterey Peninsula	86.1	86.9
SBP	San Luis Obispo	San Luis County Regional	83.8	85.1
BFL	Bakersfield	Meadows Field	81.6	87.3
ACV	Arcata/Eureka	Arcata	69.3	68.0
RDD	Redding	Redding Municipal	88.1	84.5
CRQ	Carlsbad	McClellan-Palomar	89.2	89.8
SMX	Santa Maria	Santa Maria Public/Capt G Allan Hancock Field	94.6	94.6
OXR	Oxnard	Oxnard	90.0	94.0
MOD	Modesto	Modesto City County-Harry Sham Field	83.9	75.0
CIC	Chico	Chico Municipal	84.9	82.8
IYK	Inyokern	Inyokern	90.3	91.4
CEC	Crescent City	Jack McNamara Field	72.3	67.1

Source: U.S. DOT October 2005.

3.2 PASSENGER RAIL TRAVEL

This section summarizes passenger rail ridership data across the state. Where possible, both year 2000 and 2005 data are presented. To the extent possible, interregional ridership statistics are shown in more detail than intraregional ridership data.

Table 3.13 summarizes ridership on Southern California Association of Governments (SCAG) area transit systems. The Los Angeles Metropolitan Transportation Authority (MTA) ridership is broken out by metro rail (Red Line) and light rail (Blue, Green and Gold Lines), and by bus.

Table 3.13 Year 2000 San Diego Region Weekday Daily Boardings by Operator and Mode

Operator/Mode	Year 2000	Year 2005
Commuter Rail – Coaster	4,200	6,000
Light Rail – San Diego Trolley	93,200	93,300
Bus – San Diego Transit Corporation	125,200	90,700
Bus – Other	101,700	114,100
Total San Diego Region	**324,300**	**304,100**

Source: SANDAG Passenger Counting Program as provided by Tom King of SANDAG on November 28, 2005. http://pcp.sandag.org/RptSysDailyProfile.aspx.

Table 3.14 summarizes ridership on Southern California Association of Governments (SCAG) area transit systems. The Los Angeles Metropolitan Transportation Authority (MTA) ridership is broken out by metro rail (Red Line) and light rail (Blue, Green and Gold Lines), and by bus.

Table 3.14 Year 2000 Southern California Region Weekday Daily Boardings by Operator/Mode

Operator/Mode	Year 2000	Year 2005
Commuter Rail – Metrolink	30,500	41,000
Metro Rail – Red Line	105,500	115,300
Light Rail – Blue Line	72,000	75,700
Light Rail – Green Line	27,500	31,500
Light Rail – Gold Line	–	18,500
MTA Bus	1,215,300	1,270,800
Other	677,000	
Total SCAG Region	**2,128,300**	

Sources: Southern California Association of Governments, Year 2000 Model Validation and Summary, April 2003, Los Angeles Metropolitan Transportation Authority web site: http://www.mta.net/news_info/ridership_avg.htm, accessed November 9, 2005, Southern California Regional Rail Authority, Henning Eichler, Telephone conversation and ridership data spreadsheet November 9, 2005.

Table 3.15 shows Metrolink ridership by line for 2000 and 2005. Ridership has increased from 30,500 in 2000 to the current ridership of 41,000. The current ridership totals do not include Rail-to-Rail riders, a program where Metrolink riders can board Amtrak trains, and vice versa. Rail-to-rail ridership is currently 220 north of Los Angeles and 1,300 south of Los Angeles. The rail-to-rail program was initiated in late 2002.

Table 3.15 Year 2000 Weekday Daily Metrolink Boardings

Metrolink Line	Year 2000	Year 2005*
Ventura County Line	4,000	4,000
Antelope Valley Line	5,000	6,800
San Bernardino Line	9,500	11,600
Riverside	4,600	4,300
Orange County	5,600	6,100
Inland Empire-Orange County	2,300	3,800
91 Line	–	2,100
Burbank Turn	500	600
Total Metrolink Boardings	**30,500**	**39,300**

Source: Southern California Regional Rail Authority, Henning Eichler, telephone conversation and ridership data spreadsheet November 9, 2005.

*Excludes Rail-to-Rail passengers.

Table 3.16 presents San Francisco Bay Area transit ridership by operator and submode for the year 2000. Comprehensive year 2005 data was not available at the time of report preparation. Ridership data for the Capitol Corridor and Altamont Commuter Express are for trips that are totally within the Bay Area.

Table 3.16 Year 2000 San Francisco Bay Area Weekday Daily Boardings by Operator/Mode

Operator/Mode	Year 2000 Bay Area
Metro Rail – BART	326,000
Conventional Rail – Caltrain	31,300
Conventional Rail – Altamont Commuter Express	2,200
Conventional Rail – Capitol Corridor	1,400
Conventional Rail – San Joaquins	100
Light Rail Muni Metro	168,500
Light Rail – Santa Clara VTA	30,100
Muni Other (diesel & electric bus, cable cars)	585,800
Bus – AC Transit	200,900
Bus – Santa Clara VTA	153,700
Bus – Samtrans	62,600
Bus/Ferry – GGT	39,600
Bus/Ferry – Other	86,300
Total	**1,688,500**

Source: Metropolitan Transportation Commission, 2000 Base Year Validation of Travel Demand Models for the San Francisco Bay Area (BAYCAST-90), May, 2004.

Altamont Commuter Express (ACE) boardings for the year 2000 are shown in Table 3.17. ACE ridership data shows station boardings and alightings for a.m. peak trains (inbound to Bay Area only). Ridership was doubled to extrapolate out to daily totals. Ridership patterns show that AM period riders board each station between Stockton and Fremont, but do not disembark at any San Joaquin stations. Additionally, although each Bay Area station has some numbers of riders disembarking, Great America accounts for 75 percent of total AM station offs.

Table 3.17 Altamont Commuter Express Year 2000 Weekday Daily Boardings

	Daily Passengers
San Joaquin County	800
Bay Area	2,000
Total	**2,800**

Source: Altamont Commuter Express, 2003.

Year 1999 Sacramento Region and 2005 RT transit ridership is presented in Table 3.18. Ridership data for smaller regional operators for 2005 was not available during report preparation. Since 1999, two major light-rail extensions have been completed – the South Line in 2003, and the Folsom extension in 2005.

Table 3.18 Sacramento Region Year 1999 and 2005 Weekday Daily Boardings by Operator/Mode

Operator/Mode	Year 1999	Year 2005
Sacramento RT Light Rail	26,900	37,600
Sacramento RT Bus	58,500	67,000
Other	7,000	
Total SCAG Region	**92,400**	

Source: Sacramento Association of Governments, Model Update Report, SACMET01, March, 2002, Sacramento Regional Transit District Fact Sheet, available on-line at http://www.sacrt.com/documents/RT%20Fact%20Sheets/RT%20Fact%20Sheet.pdf.

3.3 TRAFFIC DATA

The California Statewide model includes traffic counts that were obtained from the Caltrans traffic count database. It includes detailed daily and hourly traffic counts from approximately 1,100 permanent count census station locations. Two-way total daily traffic volumes were also input from the 2000 Caltrans *Traffic Volumes* for 75 locations on screenlines (Figures 3.13, 3.14, and 3.15).

This data will be supplemented from the individual regional models. Figures 3.16, 3.17, and 3.18 show traffic counts from the Los Angeles, Sacramento, and Kern county regions. Traffic counts are still being obtained from the San Francisco and San Diego models.

Figure 3.13 Census Count Stations (Red) and Screenline Locations (Blue)

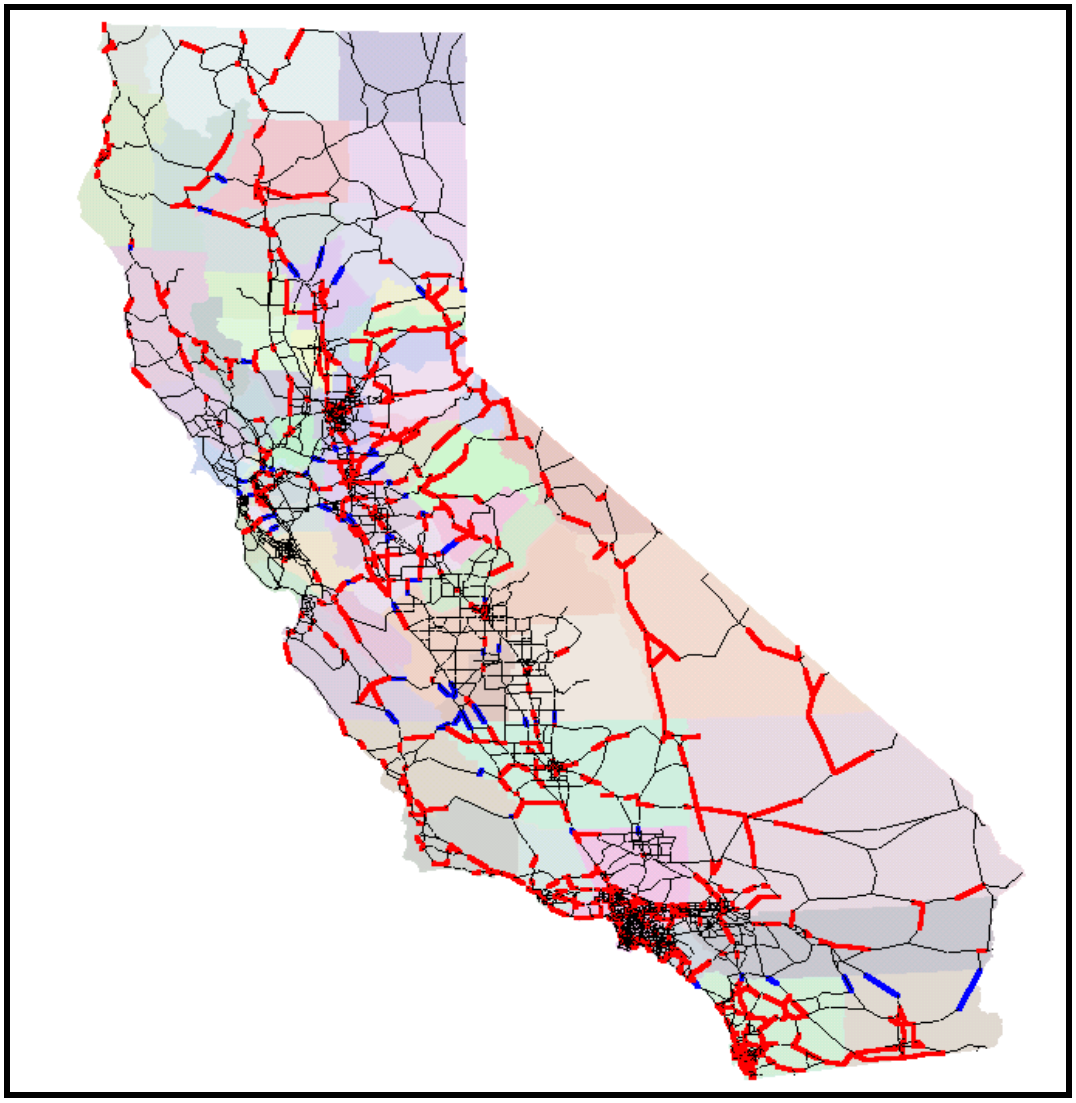


Figure 3.14 Census Count Stations (Red) and Screenline Locations (Blue) – Bay Area and Sacramento

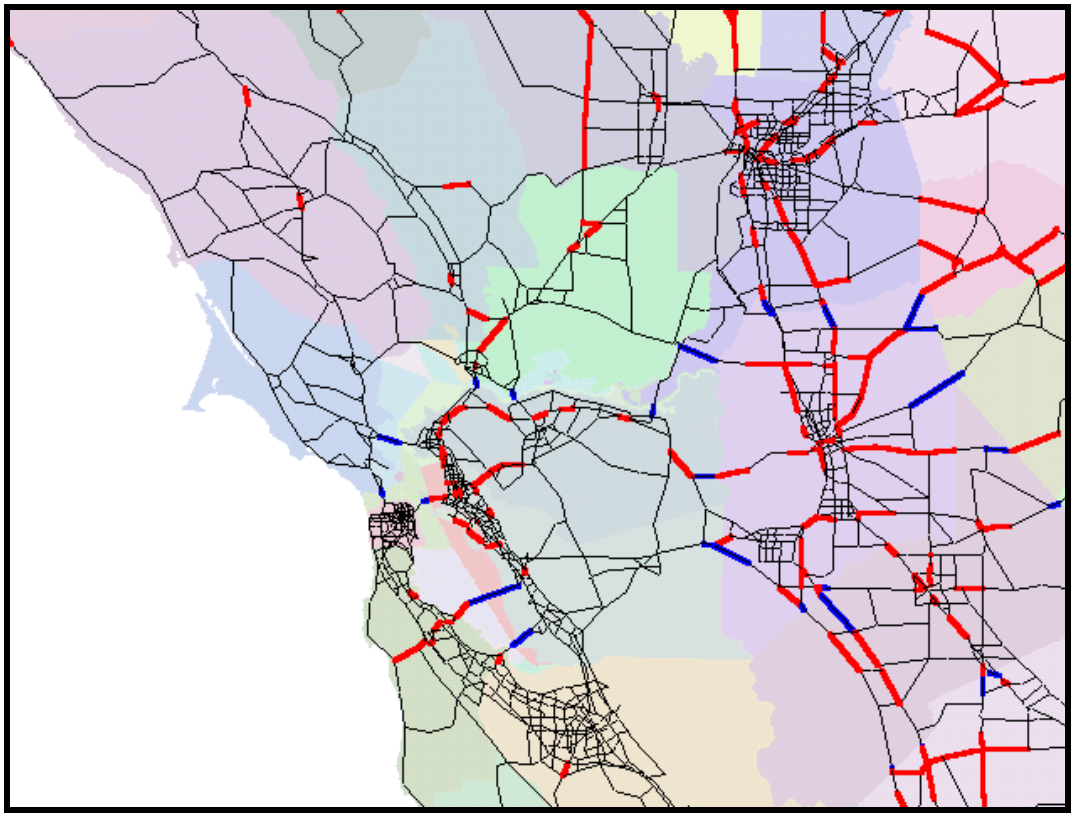


Figure 3.15 Census Count Stations (Red) and Screenline Locations (Blue) Southern California

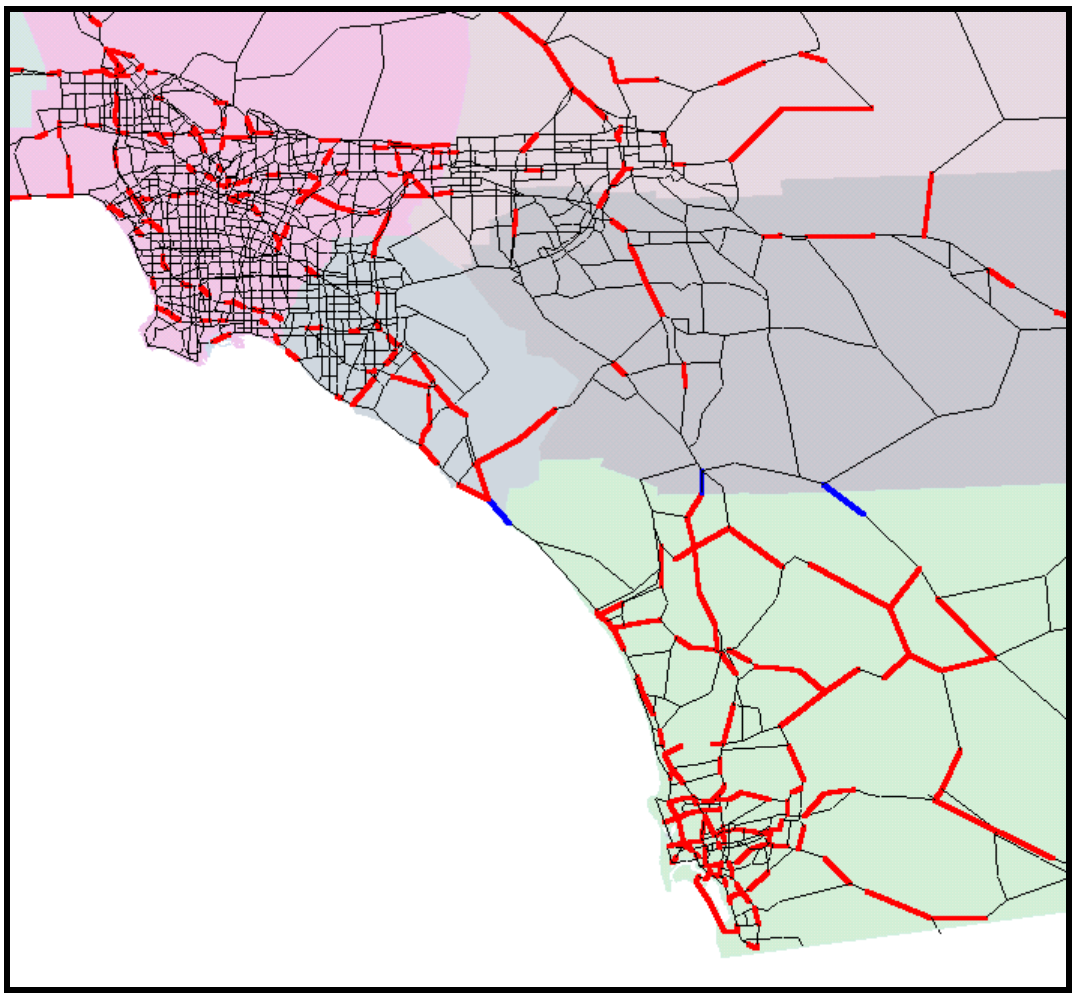


Figure 3.16 Screenline Locations from the SCAG Model

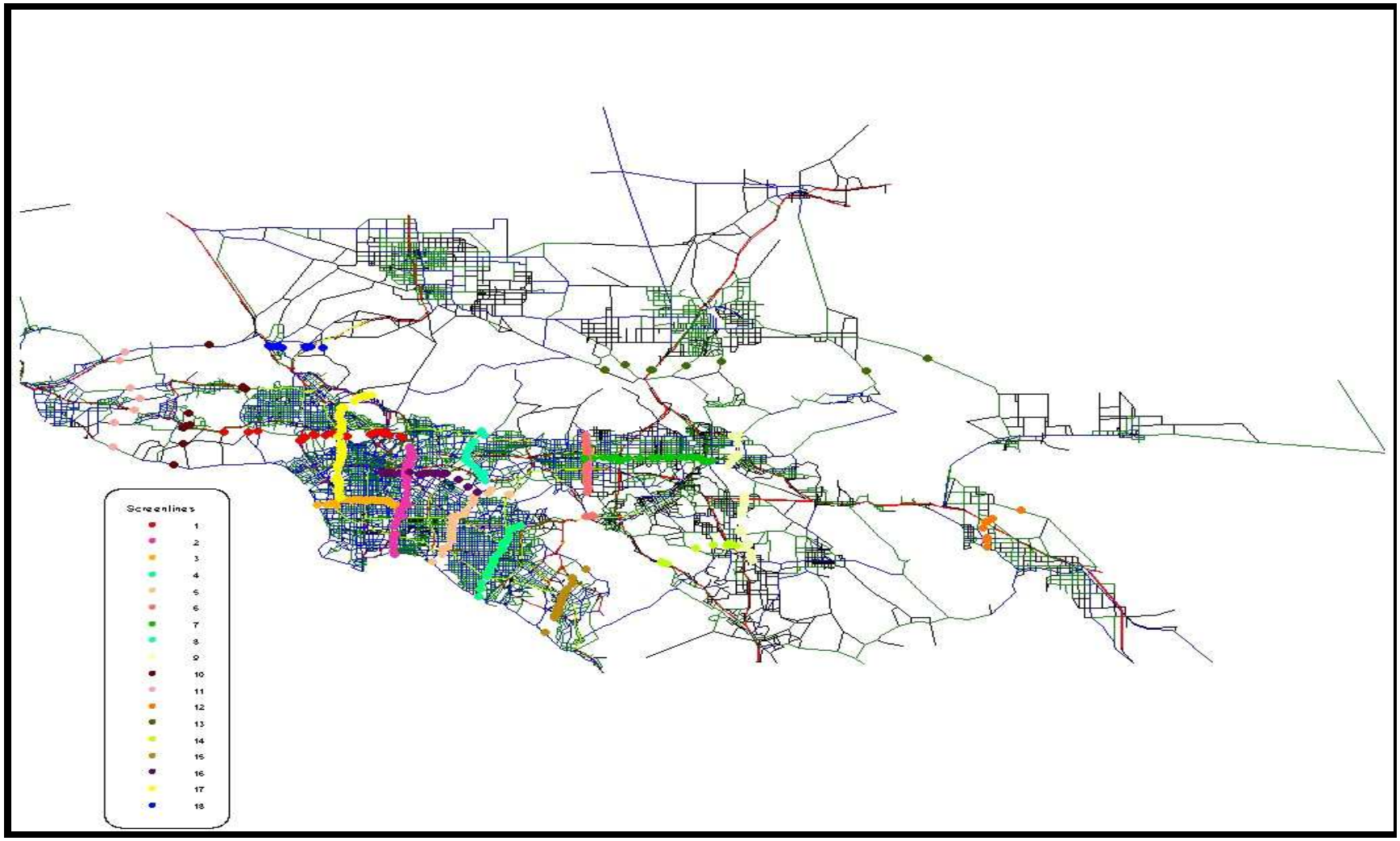


Figure 3.17 SACOG Model Screenline Locations – Greater Downtown Sacramento

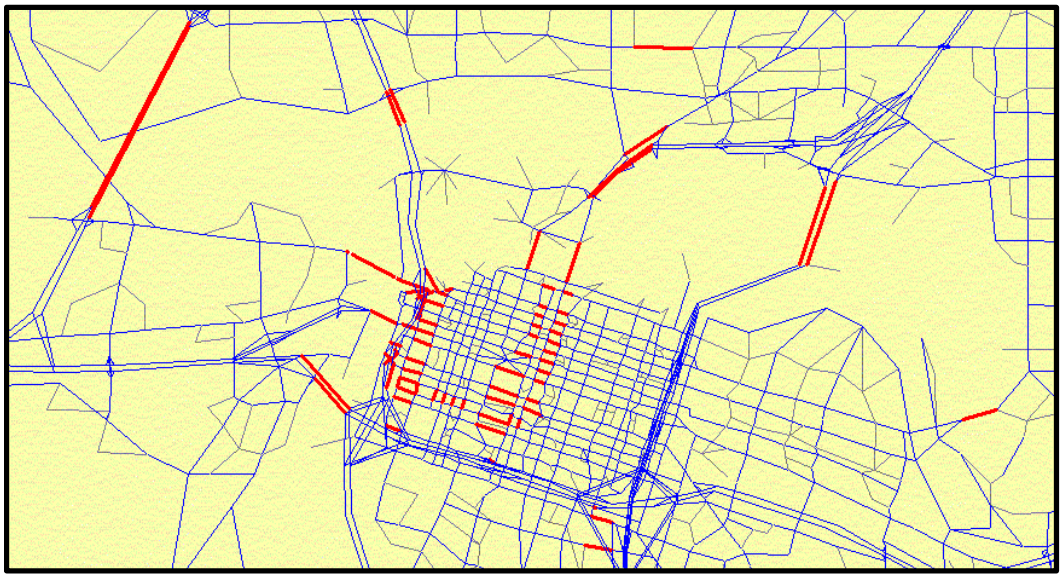
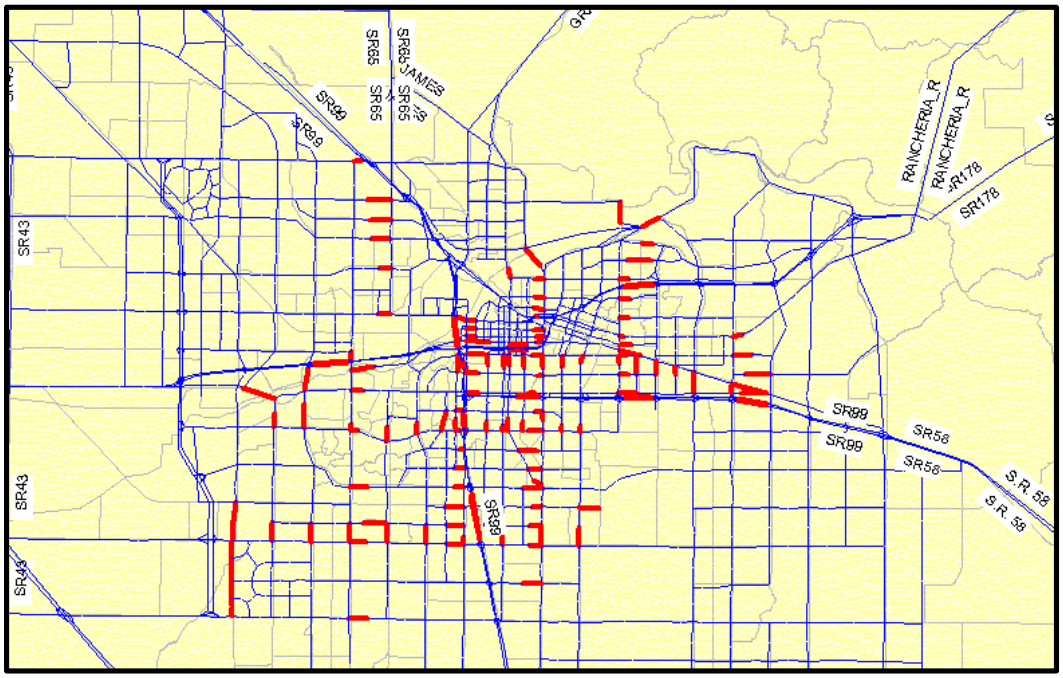


Figure 3.18 Kern County Model Screenline Locations



4.0 Transportation Supply

The base year service levels will be used in model calibration/validation, and forecast year service levels will be used in model application to evaluate alternative scenarios. The primary sources of this supply information are the California Statewide Travel Demand Model, which includes both highway, and public mode transportation networks (base and forecast), the regional travel demand models, and the base year published timetables and fare tables for public modes.

The Statewide Model and the MTC, SCAG, SANDAG, and SACOG demand models were used to develop base year and forecast year highway networks that reflect congested travel times by time of day. The Statewide Model is the primary source of the intercity highway network, and we retained that model's zone system for most of the state geography. Where the Statewide Model overlaps with one of the large regional model systems, we added detail from the regional models.

We also updated the Statewide Model's public mode networks using airline schedule and fare information from the Official Airline Guide, the airline web sites, and the U.S. DOT's T-100 reports. We assembled intercity rail schedules and fares from Amtrak and other rail operators in the corridor. We used the regional models to develop base year and forecast year intraregional transit networks for the new zone system.

4.1 AIRPORT ACTIVITY

The state of California has 28 airports that offer commercial airline passenger service between California cities and elsewhere. Table 4.1 lists these airports and provides estimates of their numbers of annual passenger boardings (regardless of destination). Los Angeles International (LAX) is the third busiest airport in the country with almost 29 million boardings in 2004, and nine other airports are within the top 100 passenger volume airports in the country.

In addition to those listed, a handful of other airports have offered scheduled air service in the past 15 years, and it is possible that additional airports will do so in the future if increasing demand warrants it. The air network used in this study will need to include all likely airports, but forecasting future year within-state origin-destination service will need to rely heavily on the current airport activity levels.

Table 4.1 California Airports

Airport Code	City	Airport Name	CY 2004 Boardings	CY 2003 Boardings	% Change	National Rank in Annual Boardings
LAX	Los Angeles	Los Angeles International	28,925,341	26,239,584	10.24%	3
SFO	San Francisco	San Francisco International	15,605,822	14,079,173	10.84%	13
SAN	San Diego	San Diego International	8,135,832	7,565,196	7.54%	29
OAK	Oakland	Metropolitan Oakland International	6,923,690	6,638,343	4.30%	31
SJC	San Jose	Norman Y. Mineta San Jose International	5,269,849	5,104,201	3.25%	37
SMF	Sacramento	Sacramento International	4,795,970	4,390,847	9.23%	41
SNA	Santa Ana	John Wayne Airport-Orange County	4,621,107	4,266,083	8.32%	42
ONT	Ontario	Ontario International	3,291,726	3,089,025	6.56%	52
BUR	Burbank	Bob Hope	2,455,574	2,352,465	4.38%	61
LGB	Long Beach	Long Beach/ Daugherty Field/	1,425,875	1,409,039	1.19%	77
PSP	Palm Springs	Palm Springs International	687,098	627,231	9.54%	101
FAT	Fresno	Fresno Yosemite International	538,394	501,373	7.38%	115
SBA	Santa Barbara	Santa Barbara Municipal	417,285	383,902	8.70%	128
MRY	Monterey	Monterey Peninsula	183,785	182,725	0.58%	181
SBP	San Luis Obispo	San Luis County Regional	158,107	141,649	11.62%	191
BFL	Bakersfield	Meadows Field	118,046	90,187	30.89%	205
ACV	Arcata/ Eureka	Arcata	96,289	90,202	6.75%	213
RDD	Redding	Redding Municipal	60,978	53,868	13.20%	248
CRQ	Carlsbad	McClellan-Palomar	49,447	49,275	0.35%	258

Table 4.1 California Airports (continued)

Airport Code	City	Airport Name	CY 2004 Boardings	CY 2003 Boardings	% Change	National Rank in Annual Boardings
SMX	Santa Maria	Santa Maria Public/ Capt G Allan Hancock Field	38,082	61,989	-38.57%	290
VCV	Victorville	Southern California Logistics	32,421	29,020	11.72%	300
OXR	Oxnard	Oxnard	23,832	21,975	8.45%	320
MOD	Modesto	Modesto City County-Harry Sham Field	19,798	14,594	35.66%	333
CIC	Chico	Chico Municipal	17,561	16,237	8.15%	345
IYK	Inyokern	Inyokern	12,725	11,427	11.36%	367
CEC	Crescent City	Jack McNamara Field	12,472	11,267	10.69%	371
IPL	Imperial	Imperial County	7,106	8,066	-11.90%	432
MCE	Merced	Merced Municipal/ MacReady Field	6,144	7,522	-18.32%	447
All		**Total**	**83,930,356**	**77,436,465**	**8.39%**	

Source: Bureau of Transportation Statistics web site ( ), accessed October 2005.

4.2 PASSENGER RAIL SERVICES

Year 2000 passenger rail services consist of a variety of intraregional and interregional services. Passenger rail services are also subdivided by mode – metro rail (i.e., BART), conventional rail (both intercity and commuter services), and light rail. This section describes rail services in 2000 and 2005 by region and for interregional areas.

SANDAG (San Diego) Region

The San Diego Region has two rail operators – San Diego Trolley (light rail) and the Coaster (conventional rail), Table 4.2 presents scheduled headways all light rail and conventional rails lines in the San Diego Region. Comparable data for year 2000 was not available at time of report preparation.

Table 4.2 San Diego Trolley Lines and Coaster Services (2000 and 2005)

Route	Year 2005 Headways (Peak/Midday)
San Diego Trolley Lines	
Blue Line – San Ysidro-Old Town	15/15
Blue Line – San Ysidro-Qualcomm Stadium	15/0
Blue Line – San Ysidro-American Plaza	15/0
Orange Line – Gillespie Field – Imperial/12th	15/15
Green Line – Santee – Old Town	15/15
San Diego Coaster (Conventional Rail)	35/>2 hours

SCAG (Greater Los Angeles) Region

The SCAG region has metro, conventional, and light-rail services. The Los Angeles Metropolitan Transportation Authority (MTA) operates metro and light-rail services. The Southern California Regional Rail Authority (SCCRA) operates Metrolink conventional commuter rail services. Tables 4.3 and 4.4 present current headways of all Los Angeles Area rail lines. Comparable data for year 2000 was not available for year 2000.

The MTA Rail system is comprised of the Metro Blue, Green, Red, and Gold Lines. The Metro Red Line subway operates between Union Station, the Mid-Wilshire area, Hollywood, and the San Fernando Valley.

The remaining light-rail lines are the Blue Line (Long Beach to Los Angeles), the Green Line (Norwalk to Redondo Beach), and the Gold Line (Los Angeles Union Station [LAUS] to Pasadena).

Table 4.3 LAMTA Rail Transit Lines (2000 and 2005)

Route	Year 2005 Headways (Peak/Midday)
Metro – Red Line – North Hollywood/LAUS	12/12
Metro – Red Line – Wilshire@Western/LAUS	12/12
LRT – Blue Line – Los Angeles/Long Beach	5/12
LRT – Green Line –Redondo Beach/Norwalk	7.5/12
LRT – Gold Line – Pasadena/LAUS	12/15

Table 4.4 Metrolink Rail Lines (2000 and 2005)

Route	Year 2005 Round Trips/Day
Ventura County Line*	11 (different termini in Ventura County)
Antelope Valley Line	12
San Bernardino Line	17
Riverside	5 all stop/5 express (10 total)
Orange County	20 (different stop patterns)
Inland Empire-Orange County	15 (different stop patterns)
91 Line	11 (Some with layovers in Orange)
Burbank Airport	33 (Some trains end at Downtown Burbank)

MTC (Bay Area) Region

Within the MTC region, metro, convention and light-rail services are provided. Services include BART, Caltrain, Muni Metro, and Santa Clara VTA light-rail systems. In 2000, the BART system consisted of 39 stations serving four East Bay lines (Fremont, Dublin/Pleasanton, Pittsburg/Bay Point, and Richmond), as well as the Daly City/Colma line through San Francisco and the West Bay. In 2002, BART service was extended south of Colma to San Francisco Airport and to Millbrae, and four new stations were added. BART service is presented in Table 4.5.

Table 4.5 Bay Area Rapid Transit District Lines

Route	Year 2000 Headways (Peak/Midday)	Year 2005 Headways (Peak/Midday)
Richmond – Daly City	15/15	15/15
Dublin/Pleasanton – Daly City	15/15	n/a/
Dublin/Pleasanton – SFO/Millbrae	n/a	15/15
Pittsburg/Bay Point – Daly City*	5/15	5.5/15
Fremont/Daly City	15/15	15/15
Richmond/Fremont	15/15	15/15

*Some trains start at either North Concord, Concord, or Pleasant Hill; and some trains end at Montgomery.

Caltrain currently operates 86 daily trains between San Jose and San Francisco, including three daily peak-period, peak direction round trips to Gilroy. Trains run to San Francisco an average of every 12 minutes during peak periods, and 30 minutes during off-peak periods. Since the year 2000, Bay Bullet trains have

been introduced, significantly reducing San Jose to San Francisco Express train travel times. See Table 4.6.

Table 4.6 Caltrain Service Summary – Year 2005

Route	Year 2000 Headways (Peak/Off Peak)	Year 2005 Headways (Peak/Off Peak)
San Jose/Tamien – San Francisco	15/30	12*/30
Gilroy/San Francisco	3 round trips	3 round trips
Trains per daily (one way)	68 daily trains	86 daily trains
Other	–	Baby bullet trains

*Headways determined by AM and midday San Francisco arrivals.

Headways for San Francisco rail and cable car routes are shown in Table 4.7. These cover the five light-rail (metro) lines that operate in the Market Street subway, three cable car routes, and the historic trolley line operating on Market Street. Comparable year 2000 data was not available for this report.

Table 4.7 Muni Rail and Cable Car Routes – Year 2005

Route	Year 2005 Headways (Peak/Off Peak)
J-Church	9/10
K-Ingelside	9/10
L-Taraval	7/10
M-Ocean View	9/10
N-Judah	7/10
F-Market/Wharves – Historic Trolleys	6/8
Cable Cars – Three Lines	6-10/8

Year 2005 Santa Clara light-rail lines are shown in Table 4.8. Since the year 2000, light rail has been extended to East San Jose (Alum Rock) and to Winchester (Vasona line).

Table 4.8 Santa Clara VTA Light-Rail Transit Routes in 2000 and 2005

Route	Year 2005 Headways (Peak/Off Peak)
Alum Rock (East San Jose)/Santa Teresa (South San Jose)	15/15
Mountain View/ Winchester (Vasona)	15/30
Oholone Chynoweth/Almaden (Shuttle)	15/30

SACOG (Sacramento) Region

The SACOG region's rail services are limited to the Sacramento RT light-rail system. Year 2000 and 2005 LRT lines and headways are shown on Table 4.9. Since 2000, two RT extensions have come on-line: In 2003, the South Line extension was implemented. This new extension resulted in RT running two lines for the first time. More recently, the Folsom extension became operational. The Folsom Line is an extension of the existing line that operates along the U.S. 50 corridor.

Table 4.9 Sacramento RT Light-Rail Transit Services – Year 2005

Route	Year 2005 Headways (Peak/Off Peak)
Watt/I-80 – Butterfield (U.S. 50)	n/a
Watt/I-80 – Meadowview (South Sacramento)	15/15
Watt/I-80 – Folsom (U.S. 0)	15/15

Interregional Services

Interregional rail services are all conventional rail systems. These include the Capitol Corridor, Altamont Commuter Express (ACE), Surfliner, and San Joaquin systems. See Table 4.10. Year 2005 data is presented.

Table 4.10 Interregional Conventional Rail Services

Route	Year 2005 Trains/Day
Altamont Commuter Express – Stockton/San Jose	3 round trips
Capitol Corridor – Auburn/Sacramento	1 round trip
Capitol Corridor – Sacramento/JL Square	12 round trips
Capitol Corridor – JL Square/Oakland Coliseum	6 round trips
Capitol Corridor – Oakland Coliseum/San Jose	4 round trips
Surfliners – San Luis Obispo/Santa Barbara	2 round trips
Surfliners – Santa Barbara/Los Angeles	5 round trips
Surfliners – Los Angeles/San Diego	11 round trips
San Joaquins – Bakersfield/JL Square	4 round trips
San Joaquins – Bakersfield/Sacramento	2 round trips

4.3 HIGHWAY NETWORK

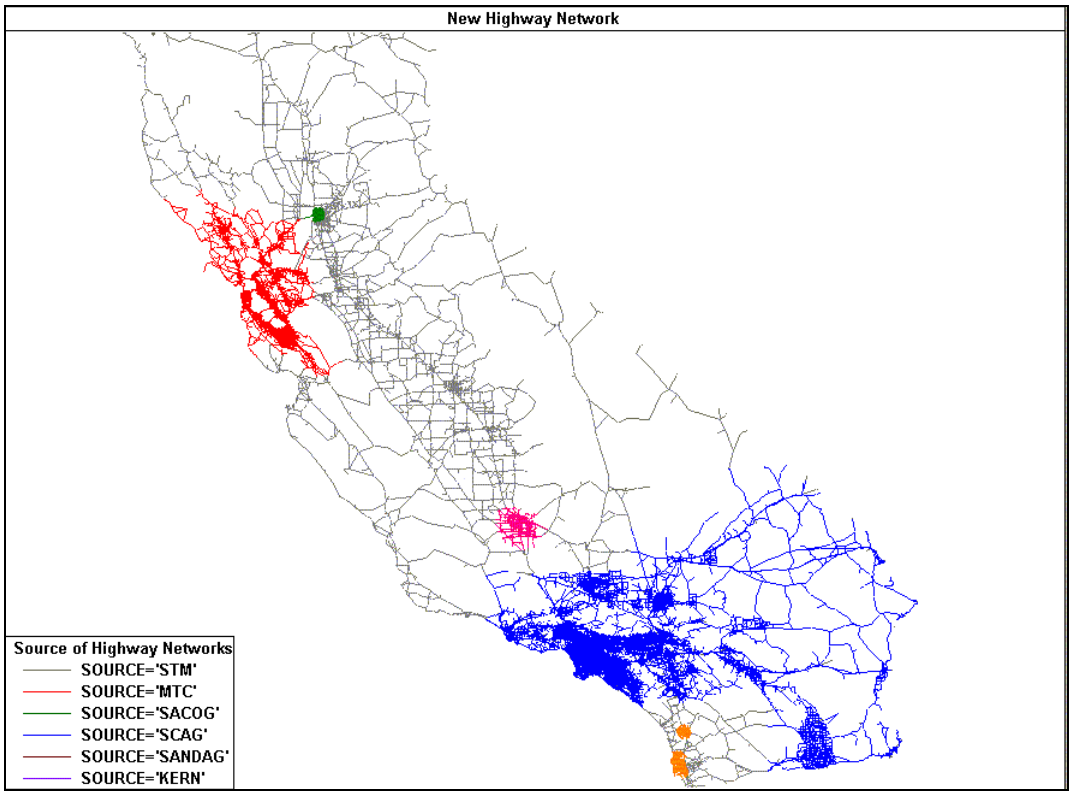
The representation of highway network supply is primarily determined by the level of detail in the highway network and the attributes associated with the roadway system, such as lanes, distances, speed, and capacity. The full description of the development of these networks will be described in a separate report on network coding (Task 7). A brief summary of these networks is provided here.

Beginning with the existing statewide highway network, detail was added using the following regional models:

- In the Metropolitan Transportation Commission (MTC) region, the entire highway network was incorporated into the model;
- In the Southern California Association of Governments (SCAG) region, the entire highway network was incorporated into the model;
- In the San Diego Association of Governors (SANDAG) region, highway network was incorporated only within a five-mile radius of the three proposed high speed rail stations;
- In the Sacramento Area Council of Governors (SACOG) region, highway network was incorporated only within a five-mile radius of the proposed high speed rail station; and
- In the Kern County region, highway network was incorporated only within a five-mile radius of the proposed high speed rail station.

Figure 4.1 shows the highway network in CUBE software. The new highway network includes 4667 zones, 127,600 links, and 206,150 nodes. Some of the links in rural areas will be flagged or deleted to reduce runtimes of the model.

Figure 4.1 New Statewide Model Highway Network



Roadway and area type classifications from the various regional models have been consolidated. Speed and capacity definitions by functional class and area type are different for each regional model. These values are based on local conditions in each region and modifications made during model validation. To take advantage of the work done in each region, values from the individual models were kept intact instead of developing a new lookup table based on area type and functional class. Tables 4.11 and 4.12 show the range of values by area type and roadway classification.

Table 4.11 Speeds (Miles Per Hour) by Area Type and Functional Classification

No	Functional Class	Area Type		
		Urban	Suburban	Rural
1	Freeway	55-65	60-70	60-70
2	Expressway	40-60	45-60	40-65
3	Major Arterial	30-50	35-60	40-60
4	Minor Arterial	20-50	25-50	25-55
5	Collectors	20-35	25-45	25-55
7	Ramps	20-45	20-45	35-40
8	Freeway-Freeway Connector	40-50	50-55	50-55

Table 4.12 Capacities (Per Lane Per Hour) by Area Type and Functional Classification

No	Functional Class	Area Type		
		Urban	Suburban	Rural
1	Freeway	1750-2100	1750-2100	1950-2100
2	Expressway	900-1800	900-1900	900-1900
3	Major Arterial	800-1800	800-1900	800-1900
4	Minor Arterial	700-1800	700-1800	700-1800
5	Collectors	550-1600	700-1600	700-1600
7	Ramps	500-1600	600-1600	1250-1600
8	Freeway-Freeway Connector	1700-2000	1800-2000	1800-2000